Wake-Shock Interaction at a Mach Number of 6

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SUMMARY

Measurements of mean pitot pressure, static pressure, and total temperature have been made in the two-dimensional turbulent mixing region of a wake downstream of an interaction with a shock-expansion wave system. The wake center-line Mach number, velocity, and total-temperature distributions indicated that (1) the shock increased the mixing and (2) the expansion field that followed the shock decreased the turbulent mixing. The overall effect of the shock-expansion wave interaction was dependent on the orientation of the expansion wave with respect to the intersecting shock wave. Wake growth rates determined from the total-temperature profiles confirmed the increased turbulent mixing effect of the shock. These data could be used to validate nonequilibrium turbulence modeling and numerical solution of the time-averaged Navier-Stokes equations.

INTRODUCTION

Scramjet combustors contain fuel-injector struts that generate leading-edge shocks and base expansions that intersect the supersonic free turbulent mixing regions of adjacent fuel-injector struts. Supersonic combustor design must consider the effects of these shock and expansion interactions on the supersonic turbulent fluctuations and mean flow downstream of the fuel-injector struts.

Although a great deal of interest has been generated in the characteristics of turbulent fluctuations downstream of a shock interaction in connection with noise generation studies (refs. 1 to 8) and of turbulent fluctuations and mean flow in shock-wave boundary-layer interactions (refs. 9 to 18), few researchers have examined a free turbulent mixing region downstream of shock or expansion wave interactions. Results from most supersonic free turbulent mixing investigations influenced by pressure gradients (refs. 19 to 25), as well as basic theory, indicate that a positive pressure gradient (as created by a shock wave) may increase turbulent mixing whereas a negative pressure gradient (as in an expansion region) may decrease turbulent mixing. However, Ortwerth (ref. 26), in analyzing the mixing of two supersonic nonreacting gases, notes a different effect of a shock on turbulent mixing. He points out that fuel injectors which minimize shock waves should increase turbulent mixing. The basis of his argument is that the interacting shocks dissipate energy that is not then available for turbulence production and dissipation.

The purpose of the present investigation is to delineate the mean flow-field structure of a turbulent free mixing region in a shock-expansion wave interaction. As

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mentioned earlier, such interactions are important in the mixing region downstream of fuel injectors in supersonic combustors. Since the experimental configuration is two dimensional, the experimental data can also be used as a test case for developing turbulence modeling in state-of-the-art compressible Navier-Stokes numerical solution procedures.

SYMBOLS

h	wake-generator base height, 1.27 cm
K	constant in velocity defect turbulence model
M	Mach number
p_0	tunnel stagnation pressure, Pa
p_{st}	static pressure, Pa
$p_{t,2}$	mean pitot pressure, Pa
R_d	Reynolds number based on probe diameter
T_0	tunnel stagnation temperature, K
T_t	local total temperature, K
U	velocity, m/sec
w	velocity defect, $\dfrac{U_e - U_c}{U_e}$
x	coordinate in flow stream direction, cm
y	coordinate perpendicular to flow stream direction, cm
$y_{1/2}$	wake half-width based on velocity profile, cm
$\left(y_{1/2}\right)_T$	wake half-width based on total-temperature profile, cm
ϵ	eddy viscosity

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Subscripts:

a   actual

c   center line of wake

e   viscous wake edge

m   measured

∞ free stream

Abbreviations:

SGS   shock-generator shock (see fig. 12)

SGRS   shock-generator recompression shock (see fig. 12)

WGRS   wake-generator recompression shock (see figs. 7 and 12)

The astericks in figures 15 to 19 denote probe shock interference effects.

APPARATUS AND TESTS

Model

The mixing region selected for the present investigation was the two-dimensional turbulent wake behind the 3.2^{O} total angle wedge (base height of 1.27 cm and a length of 22.86 cm) shown in figure 1. A photograph of the model is shown in figure 2. The inside surfaces of the model side supports were at 0° angle with respect to the main flow direction to minimize disturbances that would contaminate the two-dimensional wake. Oil-flow photographs showed that the corner flow disturbances were small and propagated into the two-dimensional region of the wake at an angle less than that of the leading-edge shock from the model side supports. Calculations indicated that the side support disturbances did not cross the region being surveyed until 35 base heights downstream, and the data show that they had a negligible effect beyond this location. The model was mounted on the tunnel floor such that the wake generator was on the tunnel center line at 0° angle of attack. Static-pressure orifices and a thermocouple were mounted in the wake-generator base as shown in figure 1. The static-pressure orifices were used to check the two dimensionality of the model flow field, and the thermocouple was used to monitor

the model temperature before and during the runs. A 10° wedge shock generator, mounted below the wake generator, had a base height of 1.27 cm and a length of 7.37 cm. The shock generator was rotated to generate various strength shocks for the interaction studies and was removed for the no-shock turbulent wake surveys.

In order to minimize the model temperature changes during a run, the model was preheated prior to each run by passing low-speed heated air through the tunnel. As a consequence of using this procedure, model temperature changes were limited to 13 K, less than 4 percent of tunnel stagnation temperature. The model base temperatures were generally 0.81 to 0.84 of the tunnel stagnation temperature.

Test Facility

The present investigation was performed in the Langley 20-inch Mach 6 tunnel; this facility is a two-dimensional blowdown tunnel which exhausts to atmosphere or vacuum with operating pressures 3 to 35 atm (1 atm = 101 325 Pa) and stagnation temperatures up to 589 K. Reference 27 gives further details concerning the tunnel. The operating pressure and temperature for the present tests were 34 atm and 505 K, respectively, resulting in a Reynolds number of 26.2×10^6 per meter.

Survey Probes

Surveys of mean pitot pressure, total temperature, and static pressure were simultaneously made at various locations downstream of the model. As shown in figures 3 and 4, the three probes were mounted on the traverse rake such that the tip of each probe would be at the same downstream location. The probes were mounted far enough apart on the rake to avoid probe interference from the leading-edge shocks of adjacent probes. In order to minimize angle-of-attack errors at each downstream location, the probe was aligned with the wake center-line flow angle. For the no-shock surveys, the probe angle was 0°; for the shock surveys, the probe angle near the intersecting shock was equal to the corresponding shock-generator angle. With increasing distance downstream of the intersecting shock, the probe angle was decreased to align with the local wake center-line flow angle as determined by extrapolating the previous upstream measurements.

Static-pressure probe.- The most difficult measurement in the present investigation was the static pressure. Static-pressure probe measurement errors in supersonic flows depend, at least, on local Reynolds number, Mach number, angle of attack, pressure gradient, shock interference, and probe configuration.

The most common static-pressure probe configuration is the cone-cylinder probe shown in figure 5. Matthews (ref. 28), Behrens (ref. 29), and Williams (ref. 30) have examined the Mach number and Reynolds number sensitivity of the cone-cylinder static-pressure probe for several cone angles and orifice locations. Pinckney (ref. 31) has

investigated a static-pressure probe consisting of a cone followed by a tangent conic transition to a cylinder. The advantage of the Pinckney probe is the proximity of the orifice holes to the cone tip and the small angle-of-attack sensitivity.

Several cone-cylinder probes with different orifice locations and a Pinckney probe were tested at Reynolds numbers based on probe diameter R_d of 5000 to 65 000 and Mach numbers M of 3.33 to 6.0. The cone-cylinder probe with the orifice locations shown in figure 5 was the least sensitive to Reynolds number and Mach number effects; therefore, it was selected for the static-pressure surveys.

Figure 5 shows the variation of the static pressure measured with the probe $p_{st,m}$ divided by the actual static pressure $p_{st,a}$ as a function of R_d and M for the selected probe. The data indicate that the static-pressure measurements were still quite sensitive to Mach number and Reynolds number in the low Reynolds number range. Figure 5 indicates the typical Reynolds number and Mach number encountered on the wake center line and the wake edge. By using the calibration curves, the corrected static pressures are generally accurate to within ±5 percent. These static-pressure errors result in velocity errors of 0.5 to 1.0 percent.

The main limitation of the present static-pressure probe is angle-of-attack sensitivity and pressure gradient effects. Only two orifice holes are drilled 180° apart on the probe to minimize the angle-of-attack sensitivity. Estimates of the error due to angle of attack and pressure gradient effects are discussed later when the wake survey data are analyzed.

Total-temperature probe.- A shielded thermocouple probe, constructed as shown in figure 6, was used for the total-temperature surveys. A probe calibration over R_d = 5000 to 65 000 and M = 3.33 to 6.0 showed that the total temperature measured by the probe was equal to tunnel total temperature within ±0.5 percent.

Mean pitot-pressure probe.- A 0.152-cm-diameter tube flattened to an opening of 0.046 cm was used as the pitot-pressure probe. The only problem encountered with the pitot-pressure measurements was in the vicinity of the shocks. Because of the probe's finite size, the measurements sometimes indicated a gradual pressure change across the shock rather than the expected sharp jump. The data affected by the presence of the shock were omitted.

Data Reduction Procedures

Because of the interdependence of Mach number and measured static pressure, it was necessary to use an iterative procedure to calculate the Mach number and velocity. The following procedure was used: (1) the measured static pressure $p_{st,m}$ was used as an initial guess for the actual static pressure to calculate Mach number and velocity;

(2) this first guess for static pressure was corrected by using the calibration curves from figure 5; (3) the new value of static pressure was used to calculate a new value of Mach number and velocity; and (4) the iteration process was continued until the difference between the new and previous value of Mach number was less than 0.0001.

RESULTS AND DISCUSSION

Two-Dimensional Turbulent Wake

Before the wake-shock interaction flow field was examined, a detailed survey was made of the basic two-dimensional turbulent wake. Figure 7 shows a schlieren photograph and schematic diagram of the basic turbulent wake. The locations of the viscous wake boundaries, shocks, and expansion-fan leading edges were determined from schlieren photographs, pitot-pressure surveys, and static-pressure surveys. Figure 7 shows that the wedge boundary layers separate at the wedge base, becoming free shear layers which expand around the wedge base and merge at the wake center line generating the wake recompression shocks (WGRS). The region between the recompression shocks consists of a viscous wake surrounded by inviscid flow. References 32 to 36 present further details concerning the basic characteristics of two-dimensional turbulent wakes.

For the survey stations shown in figure 7, pitot pressure $p_{t,2}$, total temperature T_t, static pressure p_{st}, Mach number M, and velocity U are given in figures 8(a) to 8(e) and table I. The pitot pressure, total temperature, static pressure, and velocity profiles have been nondimensionalized, respectively, by the tunnel stagnation pressure p_o, tunnel stagnation temperature T_o, free-stream static pressure $p_{st,\infty}$, and free-stream velocity U_∞ ahead of the wake-generator leading-edge shock. The static-pressure profiles in figure 8(c) have been corrected for effects of Reynolds number and Mach number.

The profiles indicate the pitot-pressure and static-pressure jumps that occur across the wake recompression shock (WGRS), the uniform total-temperature region outside the viscous wake, and the expansion regions outside the recompression shocks. Figure 8 shows that the Mach number, velocity, and total-temperature defects vary, respectively, between 30 to 17 percent, 7 to 3 percent, and 4 to 1 percent in the region $x/h = 12$ to 59. In this same region the static-pressure profiles indicate only small static-pressure variations in the viscous wake. These small static-pressure variations may be caused by the flow angle sensitivity and calibration errors of the probe. These variations can be analyzed since the actual static pressure, Mach number, and velocity can be estimated in the wake expansion region by using a Prandtl-Meyer expansion about the wedge base. This expansion region is the area that has the largest pressure gradients and flow angles and, thus, provides a good evaluation of the usefulness of the present

static-pressure probe. The error analysis indicated that the static-pressure errors and the velocity errors were ±5 percent and ±1/2 percent, respectively, in the viscous wake and ±10 percent and ±1/2 percent, respectively, in the expansion region. These results were satisfactory enough to provide some confidence in the static-pressure results from the wake-shock interaction part of the investigation.

An important aspect of the basic wake study is to determine whether the wake is laminar, transitional, or turbulent. The data of reference 37 indicated that the present wake-generator length was sufficient for the boundary layer to be turbulent before separation at the base; however, as shown by reference 20, a turbulent boundary layer may relaminarize when passing through an expansion.

Demetriades (ref. 34) has shown that the wake-transition location can be determined by plotting the square of the reciprocal of the center-line velocity defect w defined as

$$w = \frac{U_e - U_c}{U_e} \tag{1}$$

where U_e and U_c denote the velocity at the edge and center line of the viscous wake. The slope of the curve is proportional to viscosity, and therefore, a change in slope marks the beginning of transition. Figure 9 shows that the present wake transition location is $x/h = 7$. Apparently the wake-generator boundary layer did relaminarize, and transition occurred again in the wake.

After the transition location was determined, the growth rate of the viscous wake was examined to determine when the turbulent wake was fully developed. Most investigators use the wake half-width $y_{1/2}$ as a measure of wake growth where $y_{1/2}$ is defined as

$$y_{1/2} = y \tag{2}$$

when $U = \left(U_c + U_e\right)/2$. The wake half-width shown in figure 9 indicates that downstream of $x/h = 17$ the wake growth is proportional to $x^{1/2}$. This growth rate corresponds to the compressible fully developed turbulent wake data of Demetriades (ref. 35) and previous incompressible fully developed turbulent wake data. (See ref. 38.)

In addition to comparing the growth rate of the present data with previous data, the experimental center-line velocity distribution was compared to predictions by using the implicit finite-difference code of reference 39 and a velocity defect turbulence model given in reference 40. Figure 10 shows the comparison for $K = 0.036$ and 0.03. Wagner (ref. 33) has previously used $K = 0.036$ for a compressible two-dimensional wake.

The basic turbulent wake data obtained in the first part of this investigation was used as a comparison case to evaluate the effects of shock-expansion wave interactions on turbulent mixing.

Basic Structure of Wake-Shock Interaction

Figure 11 shows schlieren photographs (knife edge horizontal), and figure 12 gives the flow-field schematic diagrams for various shocks intersecting the basic two-dimensional turbulent wake previously discussed. These shocks were generated by 0°, 10°, 15°, and 20° deflections of the upper surface of the shock generator. Each photograph (fig. 11) shows two wakes: the upper one is that of the wake generator, and the lower one is that of the shock generator. The interaction of interest here is the shock-generator shock (SGS) intersecting the upper wake. Because of model location in the tunnel, only the schlieren photographs for the 15° and 20° deflections show the shock intersecting the upper wake; however, the other photographs are of interest in comparing the orientation of the shock-generator shock and expansion waves. As shown in figures 11 and 12, the shock-generator flow field consists of a leading-edge shock, a base expansion, and a recompression shock, all of which eventually cross the upper wake being surveyed.

The expansion region behind the shock-generator shock results in a negative pressure gradient along the upper-wake center line downstream of the shock. Figure 13 shows the magnitude and extent of this pressure gradient for the various shock interactions. The figure also indicates where the intersecting shock-generator shock (SGS) crosses the upper-wake center line and shows the transition location for the basic wake without intersecting shock. The static-pressure distributions for the 10° and 20° shock-generator deflections indicate an initial static-pressure rise behind the shock. Figure 14 shows the computed wake center-line static-pressure distribution for a shock passing through a variable velocity region. The velocity profile used to start the calculation was the no-shock profile experimentally obtained at $x/h = 7.1$. The inviscid floating shock fitting technique of Salas (ref. 41) was used for the calculation. The numerical results for the 10° and 20° deflections indicate an initial static-pressure jump as the shock crosses the wake center line, followed by an additional static-pressure increase downstream. The static-pressure distribution for the 20° SGS and 20° expansion interaction is modified sufficiently so that the gradual static-pressure rise behind the shock is no longer present. Note that this static-pressure distribution depends on the expansion-fan location relative to the shock. The separation distance between the shock and expansion-fan generation was 0.35 of the base height for this case. It is possible that a different separation distance would give a static-pressure distribution with a gradual static-pressure rise downstream of the shock. In numerical studies of a shock passing through a mixing region, Walker, Zumwalt, and Fila (ref. 42) have found a similar increase in static pressure behind the shock.

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Mean Flow-Field Surveys of Wake-Shock Interaction

Profiles of mean pitot pressure, total temperature, and static pressure obtained from the shock interaction flow-field surveys are shown in figures 15 to 17. The resultant Mach number and velocity profiles are given in figures 18 and 19. The data from figures 15 to 19 are listed in tables II to V. The location of the wake-generator recompression shock (WGRS), the shock-generator shock (SGS), and the shock-generator recompression shock (SGRS) are labeled in figures 15 to 19. Because of limited run times, some of the profiles do not extend far enough in the y-direction to show all of the shock crossings. Also, some of the profiles show the effects of probe shock interference. (The asterick has been used to denote these portions of the profiles.) The locations of probe shock interference are seen as a smearing of the shock (fig. 15(c), for $x/h = 15.0$ and 20.1) or small increases in Mach number or velocity behind the shock (figs. 18(b) and 19(b) for $x/h = 27.4$ to 47.0). Note that the Mach number and velocity should decrease rather than increase when a flow passes through a shock. Except for the cases where the shock is smeared, a 10-percent static-pressure correction would correct the shock interference; this amount of error is quite reasonable considering the complicated flow being surveyed.

The profiles indicate that the wake is displaced and distorted as the various shock and expansion regions cross the wake. The largest changes occur in the pitot-pressure and static-pressure profiles; the total-temperature profile undergoes a displacement due to the wake deflection, but the basic shape of the total-temperature profile remains the same. The characteristic pitot-pressure and static-pressure variations in an expansion region are also seen in figures 15 to 19.

Figures 20 to 23 present comparison profiles of pitot pressure, total temperature, and static pressure for the various shock-generator deflection angles at $x/h = 15.0$. Mach number and velocity profiles are presented in a similar manner in figures 24 to 27. These figures show that the expansion which follows the interacting shock makes it difficult to separate the effect of the shock from the effect of the expansion and also eliminates some of the properties that can be used to compare the shock and no-shock cases. Figures 15 to 27 show that it is impossible to define the viscous wake edge from velocity profiles; therefore, the integrated properties of mass and momentum cannot be used to compare the shock and no-shock cases. For this study, the center-line property distributions and wake growth based on total-temperature profiles are the only valid comparisons between the shock and no-shock cases.

Wake Center-Line Properties and Wake Growth

Figures 28 and 29 compare the wake center-line Mach number M_c and velocity U_c distribution for no shock and for various shock-generator deflection angles.

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Figure 28 also shows the predicted Mach number behind the interacting shock based on the interacting shock angle and the Mach number in front of the shock. The upstream Mach number was determined from the no-shock center-line Mach number distribution. The predicted Mach number for the 10° deflection is in good agreement with the experimental data, but the predicted Mach number for the 20° deflection shows a large discrepancy. This discrepancy is probably due to probe shock interference in that the center-line Mach number in the region immediately behind the 20° deflection does not seem to agree with the data farther downstream.

In a constant pressure wake, the changes in center-line Mach number and velocity at an x-location, as shown in figures 28 and 29, would indicate changes in the turbulent mixing; however, in the present case, the inviscid effects of the shock and expansion make it difficult to see the changes in mixing. The shock decreases the center-line Mach number and velocity at the shock location, and the expansion increases these quantities in the region downstream of the shock. The inviscid effects of the shock-expansion interaction on an inviscid variable Mach number profile are shown in figure 30 for a 20° deflection (20° SGS) and a 20° SGS and 20° expansion. The inviscid floating shock fitting technique of Salas (ref. 41) was used for the computations with the experimental no-shock profile at $x/h = 7.1$ as input.

If the inviscid effect of the expansion on a viscous mixing region is estimated and then subtracted from the experimental data shown in figures 28 and 29, the slope of the resultant center-line Mach number and velocity distributions will indicate changes in mixing. The inviscid effect of the expansion changes the static-pressure distribution but does not change the local stagnation pressure (determined from the measured pitot and static pressure) and the total-temperature distribution. Two methods were used herein to eliminate the inviscid effect of the expansion behind the shock. The first method determined the center-line Mach number and velocity downstream of the shock from the local stagnation pressure and measured total temperature by assuming a constant static pressure downstream of the shock. The constant static pressure used was the inviscid estimate of static pressure behind the shock which was based on the shock angle and the no-shock Mach number distribution. The second method determined the change in center-line Mach number and velocity due to the expansion behind the shock. The change in center-line Mach number was determined from the change in static pressure between the region behind the shock and each of the downstream stations. These resultant changes in Mach number and velocity were subtracted from the experimentally determined values for each station. Figures 31 and 32 present the resulting center-line Mach number and velocity data for the two methods in terms of data bands. The width of the band shows the difference in the values determined by the two methods.

The predicted Mach number behind the shock and the experimental data in figure 31 show a large initial center-line Mach number gradient which decreases farther downstream. Therefore, the data seem to indicate a region of rapid mixing directly behind the shock followed by decreased mixing farther downstream in the expansion region. The dampening effect, or smaller Mach number and velocity gradient for the 20° deflection, is particularly evident in the region $x/h = 15$ to 50. The overall mixing in the wake seemed to increase with shock strength up to the 15° deflection. For the 20° deflection, the results indicated overall increased mixing initially followed by the same levels of mixing farther downstream, which was probably due to the increased strength of the expansion region following the shock. Therefore, the overall effect of the shock-expansion interaction is shown to be dependent on the orientation and strength of the shock and expansion regions.

Two other properties that can be compared are the wake center-line total-temperature $T_{t,c}$ distribution and the wake half-width $\left(y_{1/2}\right)_T$ based on the total-temperature profiles where $\left(y_{1/2}\right)_T$ is given as

$$\left(y_{1/2}\right)_T = y \tag{3}$$

when $T_t = \left(T_{t,e} + T_{t,c}\right)/2$ where T_t is the local total temperature, $T_{t,e}$ is the total temperature at the wake viscous edge, and $T_{t,c}$ is the center-line total temperature. Since total temperature is insensitive to the inviscid effect of shock and expansion regions, corrections for inviscid effects are not required and the viscous edges of the wake can be determined. The center-line total-temperature and the $\left(y_{1/2}\right)_T$ distributions are given in figures 33 and 34. Because the total-temperature deficit is small, there is some scatter in the data shown for the total-temperature distribution in figure 33. In particular, the data for the 0° and 10° deflections in front of the shock indicate higher center-line total temperatures than do the data for the no-shock case. These differences are not believed to be caused by model temperature differences between the runs. Figure 35 shows that the model temperatures for the questionable points were higher for the no-shock case than for the shock case. Therefore, any total-temperature difference should have been of the opposite trend. Another possibility for the inconsistent data points is the probe accuracy caused by small temperature deficits, flow angles, and shock interference; however, the exact reason for the high total-temperature points in front of the shock cannot be determined.

Although there is some scatter in the data in figures 33 and 34, the data are useful in indicating the trends of the total-temperature and $\left(y_{1/2}\right)_T$ distributions as the shock

interaction strength increases. Figures 33 and 34 seem to indicate that the center-line total temperature for the 10°, 15°, and 20° deflections and viscous wake thickness for the 10° and 20° deflections increased with increasing shock interaction strength. These results seem to confirm the increased mixing effect of the shock seen in the center-line Mach number and velocity distributions. Because of the small total-temperature deficits and scatter in the $(y_{1/2})_T$ distribution, the gradients of the data in figures 33 and 34 cannot be examined for changes that would indicate the decreased mixing effect of the expansion as was done previously with the center-line Mach number and velocity distributions.

CONCLUDING REMARKS

Measurements of mean pitot pressure, total temperature, and static pressure have been made in a turbulent mixing region interacting with an oblique shock-expansion field. When estimates are made of the inviscid effects of the expansion field and then subtracted from the data, the center-line Mach number and velocity distributions indicate an increased turbulent mixing immediately behind the shock, followed by a decreased mixing region due to the expansion. Total-temperature measurements seem to confirm the increased mixing effect of the shock. With respect to scramjet combustor design, the data show the importance of the strength and orientation of the shocks and expansions that may be generated by fuel-injector struts.

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TABLE I.- EXPERIMENTAL DATA FOR NO-SHOCK GENERATOR

(a) x/h = 7.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
2.010	.031	.999	.959	6.21	1.904
1.894	.029	.999	.879	6.29	1.005
1.848	.028	.999	.848	6.33	1.006
1.792	.027	1.000	.812	6.36	1.006
1.724	.026	.999	.763	6.42	1.007
1.644	.025	1.000	.709	6.49	1.008
1.596	.024	.999	.677	6.54	1.009
1.594	.024	.999	.672	6.56	1.010
1.514	.023	.999	.629	6.60	1.010
1.440	.022	.999	.589	6.67	1.011
1.322	.020	1.000	.530	6.76	1.013
1.200	.019	.999	.462	6.96	1.015
1.118	.018	.999	.433	7.00	1.016
.954	.016	.998	.368	7.15	1.018
.874	.015	.998	.342	7.21	1.018
.790	.014	.999	.311	7.32	1.020
.712	.013	.998	.289	7.31	1.020
.606	.025	.998	.883	5.86	.996
.486	.025	.997	.899	5.79	.994
.394	.024	.998	.874	5.78	.994
.284	.021	.997	.830	5.57	.989
.234	.018	.993	.824	5.14	.975
.168	.013	.987	.867	4.34	.942
.144	.012	.981	.855	4.02	.923
.070	.008	.962	.863	3.24	.861
.028	.007	.956	.868	3.01	.838
-.034	.007	.960	.867	2.97	.836
-.130	.010	.967	.850	3.69	.898
-.180	.014	.969	.863	4.42	.937
-.232	.018	.971	.820	5.10	.963
-.302	.022	.973	.823	5.69	.980
-.342	.023	.975	.843	5.79	.983
-.426	.025	.989	.869	5.84	.991
-.592	.025	.997	.859	5.86	.996
-.712	.013	.998	.290	7.32	1.019
-1.072	.017	.998	.364	7.48	1.021
-1.172	.018	.999	.396	7.42	1.021
-1.272	.020	.999	.445	7.27	1.019
-1.432	.022	.999	.524	7.09	1.017
-1.542	.024	.999	.599	6.89	1.014
-1.546	.024	.999	.603	6.87	1.014
-1.600	.024	.999	.644	6.76	1.012
-1.784	.027	.999	.773	6.53	1.009

TABLE I. - Continued

(b) x/h = 12.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
4.757	.035	.998	1.244	5.84	.996
4.539	.035	.999	1.242	5.84	.996
4.213	.035	.999	1.239	5.84	.996
3.919	.035	.998	1.240	5.82	.995
3.663	.035	.998	1.225	5.84	.996
3.319	.034	.999	1.145	5.96	.998
2.999	.031	.999	1.013	6.06	1.001
2.775	.029	.999	.921	6.12	1.002
2.603	.027	.998	.847	6.20	1.003
2.481	.026	.999	.793	6.26	1.004
2.397	.025	.999	.753	6.34	1.005
2.279	.024	.998	.714	6.38	1.006
2.179	.023	.999	.672	6.45	1.007
2.069	.022	.998	.635	6.51	1.008
1.965	.022	.998	.598	6.58	1.009
1.871	.021	.999	.569	6.63	1.010
1.751	.020	.998	.533	6.69	1.011
1.593	.019	.998	.480	6.84	1.013
1.415	.017	.998	.457	6.77	1.012
1.341	.017	.998	.446	6.76	1.012
1.145	.027	.998	.924	5.91	.997
1.017	.027	.997	.946	5.89	.996
.865	.027	.997	.955	5.86	.995
.759	.027	.998	.955	5.84	.995
.597	.027	.998	.947	5.81	.995
.529	.026	.998	.940	5.79	.994
.463	.025	.996	.924	5.72	.992
.397	.024	.993	.907	5.63	.988
.353	.022	.990	.894	5.54	.984
.303	.021	.986	.885	5.35	.978
.283	.020	.985	.881	5.25	.974
.245	.019	.982	.884	5.03	.966
.197	.017	.978	.900	4.77	.955
.167	.016	.976	.917	4.59	.947
.133	.015	.973	.913	4.42	.939
.097	.014	.970	.906	4.30	.933
.047	.013	.968	.897	4.14	.924
-.007	.012	.968	.893	4.07	.920
-.041	.013	.969	.893	4.08	.921
-.085	.013	.970	.898	4.17	.926
-.129	.014	.973	.905	4.32	.935
-.159	.015	.975	.909	4.41	.940
-.193	.016	.979	.913	4.59	.949
-.237	.017	.982	.887	4.88	.961
-.283	.019	.984	.875	5.11	.970

TABLE I.- Continued

(b) x/h = 12.1 – Concluded

y/h	$P_{t,2}/P_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.313	.020	.986	.875	5.30	.976
-.343	.022	.988	.881	5.44	.981
-.383	.023	.991	.891	5.59	.986
-.445	.025	.995	.908	5.71	.991
-.489	.025	.997	.922	5.76	.993
-.591	.026	.998	.939	5.83	.995
-.719	.027	.998	.948	5.84	.995
-.839	.027	.997	.948	5.86	.995
-1.139	.027	.998	.904	5.94	.997
-1.447	.017	.999	.452	6.81	1.013
-1.519	.018	.999	.462	6.82	1.013
-1.879	.020	.999	.494	7.05	1.016
-2.185	.023	.999	.607	6.76	1.012
-2.445	.025	.998	.720	6.51	1.008
-2.751	.028	.999	.872	6.24	1.004
-3.009	.031	.998	1.012	6.04	1.000

TABLE I.- Continued

(c) x/h = 15.0

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
5.063	.036	.999	1.299	5.75	.994
5.059	.036	.999	1.299	5.75	.994
4.799	.036	.999	1.291	5.75	.994
4.381	.035	.999	1.282	5.74	.994
4.013	.035	1.000	1.239	5.81	.996
3.787	.034	1.000	1.177	5.87	.997
3.427	.031	1.000	1.046	5.95	.999
3.231	.029	.999	.979	5.99	.999
3.063	.028	.999	.917	6.04	1.000
2.849	.026	1.000	.842	6.13	1.002
2.719	.025	1.000	.793	6.20	1.004
2.539	.024	1.000	.735	6.29	1.005
2.537	.024	1.000	.730	6.31	1.006
2.333	.023	.999	.671	6.39	1.007
2.175	.022	.999	.625	6.48	1.008
2.017	.021	.999	.580	6.56	1.009
1.893	.020	.999	.549	6.62	1.010
1.711	.019	.999	.505	6.70	1.012
1.529	.018	.998	.473	6.72	1.011
1.435	.027	.998	.951	5.89	.996
1.281	.028	.998	.979	5.82	.995
1.083	.028	.998	.989	5.82	.995
.859	.028	.998	.995	5.80	.995
.595	.027	.999	.983	5.76	.994
.501	.026	.997	.967	5.67	.991
.447	.025	.995	.951	5.61	.989
.411	.024	.994	.939	5.52	.986
.363	.022	.992	.926	5.40	.982
.289	.020	.988	.915	5.10	.971
.257	.019	.986	.918	4.94	.965
.253	.019	.986	.918	4.94	.965
.227	.018	.984	.925	4.81	.960
.183	.017	.980	.940	4.62	.951
.143	.016	.977	.944	4.44	.942
.097	.015	.974	.935	4.34	.936
.053	.014	.970	.932	4.30	.932
.015	.014	.970	.928	4.26	.930
-.011	.014	.969	.929	4.26	.930
-.033	.014	.969	.930	4.26	.930
-.055	.014	.971	.931	4.28	.932
-.089	.014	.972	.934	4.31	.934
-.115	.015	.975	.937	4.36	.937
-.151	.016	.978	.943	4.45	.943
-.173	.016	.980	.949	4.53	.947
-.209	.017	.982	.931	4.69	.955

TABLE I.- Continued

(c) $x/h = 15.0$ – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.245	.018	.985	.919	4.86	.962
-.259	.019	.986	.914	4.95	.965
-.305	.020	.990	.908	5.12	.973
-.351	.021	.992	.912	5.33	.980
-.405	.023	.995	.923	5.52	.987
-.475	.025	.998	.941	5.64	.991
-.527	.026	.998	.954	5.71	.993
-.577	.026	.999	.963	5.75	.994
-.763	.027	.999	.981	5.79	.995
-.915	.028	.999	.984	5.80	.995
-1.125	.027	.999	.981	5.81	.995
-1.321	.027	.999	.974	5.82	.995
-1.491	.027	.999	.952	5.88	.997
-1.661	.018	.999	.472	6.71	1.012
-1.753	.018	.999	.480	6.74	1.012
-2.111	.020	1.000	.505	6.94	1.013
-2.371	.022	1.000	.565	6.83	1.014
-2.753	.025	.998	.689	6.56	1.009

TABLE I.- Continued

(d) x/h = 17.4

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.216	.026	1.000	.823	6.16	1.003
3.110	.025	1.000	.795	6.18	1.003
2.994	.025	1.000	.760	6.23	1.004
2.836	.023	1.000	.711	6.30	1.006
2.656	.022	1.000	.669	6.36	1.007
2.468	.021	.959	.619	6.45	1.008
2.304	.020	1.000	.581	6.50	1.009
2.200	.020	1.000	.553	6.57	1.010
2.016	.019	1.000	.506	6.69	1.012
1.860	.018	.998	.468	6.79	1.013
1.720	.027	.999	.948	5.88	.997
1.540	.028	.999	.970	5.86	.996
1.212	.028	.998	.973	5.86	.996
.898	.028	.998	.972	5.84	.996
.666	.027	1.000	.961	5.78	.995
.592	.026	.999	.948	5.72	.993
.536	.025	.999	.932	5.66	.992
.496	.024	.999	.920	5.60	.990
.418	.022	.997	.901	5.43	.985
.374	.021	.995	.890	5.26	.979
.338	.019	.993	.888	5.12	.974
.290	.018	.991	.890	4.96	.968
.244	.017	.987	.897	4.83	.962
.228	.017	.986	.900	4.78	.960
.180	.016	.982	.912	4.63	.952
.130	.015	.977	.915	4.48	.944
.072	.015	.973	.910	4.42	.939
.040	.015	.972	.907	4.39	.937
-.008	.014	.972	.907	4.38	.937
-.050	.015	.972	.908	4.41	.938
-.104	.015	.974	.911	4.46	.942
-.142	.016	.979	.915	4.54	.947
-.182	.016	.981	.905	4.65	.953
-.228	.017	.985	.889	4.82	.961
-.264	.018	.989	.884	4.93	.966
-.298	.019	.990	.878	5.04	.970
-.338	.020	.994	.873	5.21	.978
-.380	.021	.997	.875	5.34	.983
-.422	.022	.998	.883	5.48	.987
-.460	.023	.999	.893	5.59	.990
-.506	.024	1.000	.904	5.67	.992
-.546	.025	1.000	.913	5.72	.994
-.594	.025	1.000	.924	5.76	.995
-.642	.026	1.000	.932	5.80	.995
-.678	.026	.999	.936	5.82	.996

TABLE I.- Continued

(d) x/h = 17.4 – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.732	.027	.999	.941	5.83	.996
-.802	.027	.999	.945	5.85	.996
-.974	.027	1.000	.950	5.86	.997
-1.166	.027	1.000	.951	5.88	.997
-1.394	.027	.999	.950	5.88	.997

TABLE I.- Continued

(e)   x/h = 20.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.046	.023	1.000	.692	6.34	1.006
2.922	.022	1.000	.665	6.38	1.007
2.786	.022	1.000	.633	6.43	1.008
2.670	.021	1.000	.607	6.48	1.009
2.566	.021	1.000	.583	6.53	1.009
2.428	.020	1.000	.562	6.54	1.010
2.304	.019	1.000	.542	6.55	1.010
2.126	.019	.999	.520	6.58	1.010
2.054	.028	.999	.967	5.89	.997
1.784	.028	.998	.985	5.88	.996
1.540	.028	.999	.986	5.88	.997
1.298	.028	.999	.989	5.86	.996
.982	.028	.999	.985	5.85	.996
.888	.028	.999	.984	5.84	.996
.774	.028	1.000	.978	5.82	.996
.648	.027	.999	.968	5.75	.994
.598	.026	.999	.956	5.70	.993
.564	.025	.998	.946	5.67	.992
.522	.024	.998	.936	5.62	.990
.466	.023	.997	.921	5.51	.987
.416	.022	.997	.911	5.38	.984
.320	.020	.994	.902	5.10	.974
.254	.018	.990	.905	4.91	.966
.226	.018	.987	.908	4.85	.963
.186	.017	.984	.915	4.75	.958
.120	.016	.979	.930	4.59	.949
.024	.016	.974	.931	4.52	.944
-.030	.016	.974	.931	4.53	.944
-.096	.016	.976	.926	4.60	.948
-.132	.016	.978	.921	4.66	.951
-.214	.018	.985	.907	4.84	.961
-.264	.018	.988	.896	4.98	.968
-.368	.021	.995	.894	5.28	.980
-.428	.022	.997	.903	5.49	.986
-.512	.024	.999	.921	5.64	.992
-.574	.025	.999	.935	5.70	.993
-.654	.026	1.000	.950	5.77	.995
-.796	.027	1.000	.960	5.83	.996
-.934	.027	1.000	.967	5.85	.996
-1.312	.028	.999	.971	5.87	.997
-1.596	.028	.998	.9?1	5.88	.996
-1.852	.028	.999	.9o5	5.88	.997
-1.988	.027	.999	.955	5.88	.997
-2.136	.018	1.000	.515	6.55	1.010

TABLE I.- Continued

(f) $x/h = 22.4$

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
2.912	.021	1.000	.617	6.43	1.008
2.776	.021	1.000	.592	6.47	1.008
2.680	.020	1.000	.580	6.46	1.008
2.518	.019	1.000	.564	6.45	1.008
2.400	.019	1.000	.551	6.45	1.008
2.316	.029	1.000	.993	5.88	.997
2.028	.029	1.000	1.001	5.87	.997
1.900	.029	1.000	1.005	5.86	.997
1.742	.029	1.000	1.006	5.86	.997
1.590	.029	1.000	1.007	5.86	.997
1.362	.029	1.000	1.008	5.85	.997
1.214	.029	1.000	1.007	5.83	.996
1.022	.028	1.000	1.006	5.82	.996
.898	.028	1.000	1.003	5.81	.996
.722	.027	1.000	.994	5.76	.995
.620	.026	1.000	.978	5.68	.993
.508	.024	.999	.948	5.54	.989
.458	.023	.998	.936	5.45	.986
.412	.022	.997	.928	5.32	.982
.370	.021	.995	.922	5.20	.978
.312	.020	.994	.920	5.07	.973
.266	.019	.990	.923	4.96	.968
.174	.018	.984	.930	4.79	.959
.092	.017	.978	.939	4.66	.951
.020	.017	.976	.941	4.62	.949
-.038	.017	.977	.940	4.63	.949
-.068	.017	.977	.939	4.65	.950
-.116	.017	.979	.931	4.70	.953
-.192	.018	.983	.917	4.86	.961
-.260	.019	.988	.910	4.99	.968
-.304	.020	.991	.906	5.11	.973
-.346	.020	.994	.906	5.21	.977
-.388	.021	.996	.910	5.33	.982
-.434	.022	.998	.915	5.44	.986
-.476	.023	1.000	.922	5.51	.988
-.516	.024	1.000	.929	5.58	.990
-.566	.025	1.000	.939	5.65	.992
-.598	.025	1.000	.946	5.68	.993
-.662	.026	1.000	.958	5.75	.994
-.708	.027	1.000	.963	5.77	.995
-.808	.027	1.000	.971	5.81	.996
-.940	.028	.999	.977	5.83	.996
-1.072	.028	1.000	.979	5.84	.996
-1.236	.028	.999	.981	5.85	.996
-1.390	.028	.999	.983	5.86	.996

TABLE I.- Continued

(f) $x/h = 22.4$ – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-1.572	.028	.999	.983	5.86	.997
-1.814	.028	.999	.980	5.87	.997
-2.070	.028	.999	.978	5.89	.997
-2.222	.028	.999	.973	5.88	.997
-2.492	.019	.999	.550	6.44	1.007

TABLE I.- Continued

(g) x/h = 27.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.546	.022	1.000	.641	6.39	1.007
3.290	.021	.999	.601	6.45	1.007
3.086	.029	.999	.995	5.89	.997
2.944	.029	.999	1.001	5.90	.997
2.624	.029	.999	1.006	5.88	.997
2.380	.029	.999	1.009	5.88	.997
2.064	.029	1.000	1.008	5.88	.997
1.760	.029	.999	1.004	5.89	.997
1.500	.029	1.000	1.006	5.88	.997
1.258	.029	.999	1.003	5.88	.997
.956	.029	.999	1.002	5.85	.996
.844	.028	1.000	.997	5.83	.996
.646	.026	1.000	.974	5.70	.993
.582	.025	.999	.960	5.62	.991
.530	.024	1.000	.950	5.56	.990
.476	.023	.998	.939	5.47	.987
.444	.023	.998	.934	5.41	.985
.386	.021	.996	.926	5.29	.981
.328	.020	.994	.922	5.17	.976
.286	.020	.992	.923	5.09	.973
.198	.019	.985	.922	4.97	.966
.138	.018	.982	.927	4.90	.962
.054	.018	.979	.927	4.86	.959
.010	.018	.979	.929	4.85	.959
-.034	.018	.979	.924	4.87	.959
-.110	.018	.981	.926	4.90	.962
-.200	.019	.986	.920	4.99	.967
-.278	.020	.991	.916	5.13	.974
-.382	.022	.995	.920	5.33	.982
-.450	.023	.998	.924	5.47	.987
-.512	.024	1.000	.937	5.55	.989
-.582	.025	1.000	.951	5.64	.992
-.676	.026	1.000	.969	5.73	.994
-.788	.028	1.000	.980	5.81	.996
-.912	.028	.999	.989	5.84	.996
-1.104	.028	.999	.995	5.86	.996
-1.254	.029	.999	.996	5.86	.996
-1.418	.029	.999	.996	5.87	.996
-1.664	.029	.999	.996	5.87	.997
-1.952	.029	.999	.996	5.87	.997
-2.382	.029	1.000	.993	5.88	.997
-2.552	.029	1.000	.989	5.89	.997

TABLE I.- Continued

(h)   x/h = 32.4

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.674	.029	.999	1.009	5.87	.997
3.428	.029	.999	1.009	5.88	.997
3.086	.029	.999	1.002	5.89	.997
2.900	.029	.999	1.000	5.89	.997
2.682	.029	.999	1.000	5.88	.997
2.364	.029	1.000	.996	5.87	.997
2.138	.028	1.000	.992	5.87	.997
1.902	.028	1.000	.989	5.87	.997
1.748	.028	1.000	.988	5.87	.997
1.528	.028	.999	.984	5.87	.997
1.330	.028	.999	.982	5.87	.996
1.140	.028	.998	.980	5.86	.996
.996	.028	.999	.975	5.85	.996
.904	.027	.999	.972	5.83	.995
.794	.027	.998	.966	5.78	.994
.702	.026	.599	.956	5.71	.993
.616	.025	.998	.941	5.63	.991
.572	.024	.998	.931	5.58	.990
.520	.023	.997	.924	5.53	.988
.460	.022	.997	.914	5.44	.985
.406	.021	.995	.909	5.34	.982
.330	.020	.992	.903	5.20	.976
.272	.020	.989	.903	5.13	.973
.178	.019	.984	.904	5.01	.967
.060	.018	.980	.908	4.94	.963
.006	.018	.980	.908	4.93	.962
-.058	.018	.980	.906	4.95	.962
-.160	.019	.983	.902	5.02	.966
-.260	.020	.988	.899	5.12	.972
-.320	.020	.991	.899	5.22	.976
-.366	.021	.993	.902	5.29	.979
-.408	.021	.995	.905	5.36	.982
-.454	.022	.996	.907	5.45	.985
-.518	.023	.998	.911	5.55	.989
-.582	.024	.999	.922	5.62	.991
-.638	.025	1.000	.932	5.67	.993
-.742	.026	1.000	.951	5.77	.995
-.830	.027	1.000	.955	5.83	.996
-.940	.028	.999	.963	5.87	.997
-1.124	.028	.998	.968	5.90	.997
-1.430	.028	.998	.972	5.92	.997
-1.646	.029	.999	.972	5.93	.998
-1.946	.029	.999	.966	5.95	.998
-2.304	.029	.998	.962	5.98	.999

TABLE I.- Continued

(i) x/h = 38.3

y/h	$P_{t,2}/P_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
4.456	.028	1.000	.991	5.85	.996
4.192	.028	1.000	.993	5.85	.997
3.964	.028	1.000	.998	5.83	.996
3.736	.028	.998	1.000	5.81	.995
3.538	.028	1.000	1.000	5.80	.996
3.382	.028	.999	.994	5.81	.995
3.220	.028	.999	.994	5.81	.995
2.984	.028	.999	.993	5.81	.995
2.744	.028	1.000	.991	5.83	.996
2.584	.028	.999	.990	5.83	.996
2.430	.028	.999	.992	5.84	.996
2.144	.028	.999	.992	5.87	.997
1.982	.029	.999	.996	5.87	.997
1.672	.029	.999	.993	5.88	.997
1.380	.028	.999	.992	5.87	.997
1.080	.028	.999	.988	5.83	.996
.808	.027	1.000	.968	5.76	.995
.714	.026	.999	.957	5.67	.992
.650	.025	.999	.947	5.62	.991
.582	.024	.999	.933	5.54	.989
.504	.023	.997	.923	5.47	.986
.406	.021	.995	.914	5.32	.981
.404	.021	.995	.913	5.31	.981
.334	.020	.992	.908	5.21	.976
.224	.020	.986	.902	5.11	.971
.166	.019	.983	.906	5.06	.968
.116	.019	.982	.907	5.02	.966
.062	.019	.981	.908	5.00	.965
-.014	.019	.980	.907	4.99	.964
-.092	.019	.981	.902	5.02	.965
-.178	.019	.984	.902	5.06	.968
-.250	.020	.988	.900	5.13	.972
-.336	.020	.992	.899	5.23	.977
-.398	.021	.994	.903	5.34	.981
-.490	.022	.997	.910	5.49	.987
-.578	.024	1.000	.920	5.58	.990
-.662	.025	1.000	.931	5.66	.992
-.748	.026	1.000	.941	5.71	.994
-.822	.026	1.000	.950	5.76	.995
-1.004	.027	.999	.959	5.82	.996
-1.172	.027	.999	.964	5.84	.996
-1.438	.027	.999	.966	5.84	.996
-1.662	.027	.998	.967	5.84	.996
-1.966	.028	.998	.967	5.85	.996
-2.192	.027	.999	.968	5.84	.996

TABLE I.- Continued

(i) x/h = 38.3 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.470	.027	.998	.967	5.84	.996
-2.816	.027	.998	.967	5.85	.996
-3.058	.027	.998	.965	5.85	.996
-3.402	.027	.999	.964	5.85	.996
-3.746	.028	.999	.964	5.86	.996
-4.078	.028	.999	.958	5.88	.997
-4.330	.028	.999	.966	5.87	.996
-4.682	.021	.999	.628	6.29	1.005
-4.920	.021	.998	.637	6.35	1.006

TABLE I.- Continued

(j)   x/h = 43.3

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
4.306	.029	1.000	1.005	5.89	.998
4.146	.029	.999	1.001	5.90	.997
3.834	.029	.999	.999	5.89	.997
3.488	.029	1.000	1.001	5.88	.997
3.236	.029	1.000	1.001	5.87	.997
2.902	.029	1.000	1.005	5.85	.997
2.534	.029	.999	1.008	5.83	.996
2.266	.029	.999	1.006	5.83	.996
1.944	.028	.999	1.006	5.83	.996
1.640	.028	.999	1.005	5.82	.996
1.298	.028	.999	1.002	5.80	.995
1.020	.027	1.000	.998	5.76	.994
.836	.026	.999	.986	5.68	.992
.748	.025	1.000	.974	5.61	.991
.690	.025	1.000	.968	5.57	.990
.614	.024	1.000	.956	5.50	.988
.612	.024	1.000	.953	5.50	.988
.540	.023	1.000	.945	5.44	.987
.464	.022	.997	.939	5.33	.982
.396	.021	.995	.936	5.24	.979
.350	.021	.974	.934	5.19	.977
.274	.020	.990	.936	5.10	.973
.202	.020	.987	.933	5.05	.969
.116	.019	.984	.935	5.00	.966
.062	.019	.983	.934	4.98	.965
.020	.019	.983	.935	4.97	.965
-.044	.019	.983	.933	4.98	.965
-.136	.019	.985	.932	5.00	.967
-.248	.020	.990	.931	5.08	.972
-.336	.021	.993	.928	5.17	.976
-.408	.021	.996	.930	5.28	.980
-.512	.023	.999	.934	5.42	.986
-.602	.024	1.000	.942	5.50	.989
-.724	.025	1.000	.955	5.61	.991
-.826	.026	1.000	.966	5.68	.993
-.936	.027	1.000	.973	5.74	.994
-1.042	.027	.999	.976	5.77	.995
-1.192	.027	.999	.980	5.79	.995
-1.426	.028	.999	.982	5.82	.995
-1.640	.028	.999	.982	5.84	.996
-1.804	.028	.999	.984	5.84	.996
-2.094	.028	.998	.985	5.85	.996
-2.226	.028	.998	.984	5.86	.996
-2.416	.028	.999	.984	5.87	.997
-2.668	.028	.999	.979	5.85	.996

TABLE I.- Continued

(j) x/h = 43.3 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.876	.028	.999	.977	5.83	.996
-3.358	.027	.999	.976	5.81	.995
-3.506	.027	.999	.974	5.81	.995

TABLE I.- Continued

(k)   x/h = 47.0

y/h	$p_{t,2}/p_O$	T_t/T_O	$p_{st}/p_{st,\infty}$	M	U/U_∞
4.818	.029	1.000	1.049	5.77	.995
4.452	.029	.999	1.043	5.77	.995
4.228	.029	.999	1.040	5.77	.994
3.954	.029	.999	1.038	5.77	.994
3.608	.029	.999	1.035	5.77	.994
3.342	.029	.999	1.035	5.77	.994
3.034	.029	.999	1.035	5.79	.995
2.614	.029	.998	1.033	5.79	.994
2.448	.029	.998	1.029	5.79	.995
2.232	.029	.998	1.024	5.79	.995
1.994	.028	.999	1.020	5.79	.995
1.862	.028	.998	1.017	5.79	.995
1.642	.028	.999	1.015	5.79	.995
1.444	.028	.998	1.016	5.78	.994
1.260	.028	.999	1.013	5.77	.994
1.118	.028	.999	1.011	5.74	.994
.994	.027	.999	1.004	5.71	.993
.876	.026	1.000	.997	5.65	.992
.790	.026	.999	.987	5.60	.990
.728	.025	.999	.979	5.56	.989
.664	.024	.999	.970	5.50	.988
.610	.024	.998	.966	5.45	.986
.542	.023	.997	.960	5.39	.984
.476	.022	.996	.955	5.30	.981
.400	.021	.993	.954	5.21	.977
.330	.021	.991	.952	5.14	.974
.272	.020	.989	.952	5.09	.971
.194	.020	.986	.953	5.04	.968
.134	.020	.984	.953	5.01	.966
.036	.020	.982	.957	4.98	.964
-.056	.020	.981	.958	4.98	.964
-.140	.020	.984	.957	5.00	.966
-.200	.020	.986	.955	5.03	.968
-.260	.020	.988	.955	5.07	.970
-.316	.021	.990	.955	5.12	.973
-.376	.021	.992	.956	5.20	.976
-.432	.022	.994	.956	5.26	.979
-.482	.022	.995	.958	5.32	.981
-.530	.023	.997	.962	5.39	.984
-.604	.024	.998	.967	5.44	.986
-.704	.025	1.000	.979	5.54	.989
-.780	.026	1.000	.988	5.59	.991
-.838	.026	1.000	.993	5.63	.992
-.902	.027	1.000	1.003	5.67	.992
-1.020	.027	.999	1.009	5.72	.993

TABLE I.- Continued

(k) x/h = 47.0 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-1.214	.028	.999	1.017	5.74	.994
-1.494	.028	.999	1.021	5.74	.994
-1.790	.028	.999	1.024	5.74	.994
-2.110	.028	.999	1.026	5.73	.994
-2.434	.028	.999	1.033	5.71	.993
-2.754	.028	.999	1.038	5.70	.993
-3.012	.028	.999	1.044	5.69	.992
-3.288	.028	.999	1.046	5.69	.992
-3.502	.028	.999	1.045	5.69	.992

TABLE I.- Concluded

(l) x/h = 59.0

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-3.476	.028	1.000	.992	5.87	.997
-3.206	.028	1.000	.994	5.85	.997
-3.012	.028	1.000	1.000	5.83	.996
-2.748	.028	1.000	1.004	5.81	.996
-2.515	.028	1.000	1.012	5.79	.995
-2.330	.028	1.000	1.013	5.78	.995
-2.038	.028	1.000	1.014	5.78	.995
-1.734	.028	1.000	1.021	5.75	.994
-1.372	.028	1.000	1.021	5.72	.994
-1.088	.027	1.000	1.013	5.67	.992
-.884	.026	.999	.995	5.58	.990
-.782	.025	.997	.984	5.53	.988
-.688	.024	.996	.973	5.47	.986
-.560	.023	.995	.962	5.39	.983
-.466	.022	.994	.957	5.30	.980
-.388	.022	.993	.953	5.23	.977
-.308	.021	.991	.953	5.17	.975
-.230	.021	.988	.952	5.12	.972
-.106	.020	.987	.952	5.06	.970
0.000	.020	.986	.952	5.04	.969
.130	.020	.987	.950	5.06	.970
.230	.020	.989	.949	5.10	.972
.314	.021	.991	.949	5.16	.975
.396	.021	.994	.950	5.22	.978
.492	.022	.996	.953	5.30	.981
.612	.023	.998	.958	5.43	.986
.704	.024	.998	.966	5.48	.987
.790	.025	.998	.975	5.54	.988
.912	.026	.998	.987	5.61	.990
1.088	.027	.999	1.001	5.69	.993
1.276	.027	1.000	1.006	5.73	.994
1.414	.028	1.000	1.008	5.75	.994
1.726	.028	1.000	1.011	5.76	.995
1.980	.028	1.000	1.014	5.76	.995
2.396	.028	1.000	1.020	5.76	.995
2.690	.028	1.000	1.025	5.75	.994
3.122	.028	1.000	1.030	5.75	.994
3.512	.028	1.000	1.040	5.73	.994
3.986	.029	1.000	1.054	5.71	.993
4.342	.029	1.000	1.063	5.69	.993
4.648	.029	1.000	1.057	5.72	.994

TABLE II.- EXPERIMENTAL DATA FOR 0° SHOCK-GENERATED DEFLECTION ANGLE

(a) x/h = 12.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.090	.025	1.000	.694	6.57	1.010
-2.010	.024	1.000	.667	6.60	1.011
-1.954	.024	1.000	.643	6.65	1.011
-1.868	.023	1.000	.607	6.74	1.013
-1.748	.022	1.000	.562	6.85	1.014
-1.618	.021	1.000	.517	6.97	1.016
-1.500	.020	1.000	.479	7.08	1.017
-1.414	.019	1.000	.460	7.11	1.018
-1.294	.019	1.000	.434	7.16	1.019
-1.212	.018	1.000	.416	7.21	1.019
-1.128	.030	.998	1.105	5.74	.993
-1.016	.031	1.000	1.137	5.70	.993
-.952	.028	.999	.977	5.85	.996
-.756	.028	1.000	.998	5.77	.995
-.524	.027	.998	.971	5.75	.993
-.456	.026	.997	.957	5.68	.991
-.404	.024	.995	.943	5.59	.988
-.334	.022	.993	.927	5.40	.983
-.278	.020	.990	.925	5.13	.973
-.208	.017	.984	.952	4.66	.954
-.148	.015	.978	.951	4.34	.938
-.114	.014	.976	.942	4.22	.931
-.074	.013	.973	.931	4.08	.923
-.034	.013	.971	.923	4.00	.918
-.008	.012	.971	.920	3.96	.916
.032	.012	.972	.917	3.98	.917
.088	.013	.974	.917	4.09	.924
.146	.014	.978	.927	4.30	.936
.188	.016	.983	.939	4.46	.946
.252	.018	.988	.918	4.86	.963
.294	.020	.991	.909	5.15	.974
.336	.022	.993	.917	5.36	.981
.390	.024	.996	.935	5.52	.987
.424	.025	.997	.954	5.64	.990
.548	.027	.998	.977	5.74	.993
.662	.027	.999	.985	5.77	.994
.918	.028	.999	.975	5.84	.996
1.136	.028	.999	.939	5.93	.998
1.246	.016	1.000	.413	6.92	1.015
1.390	.017	1.000	.439	6.90	1.015
1.584	.019	1.000	.499	6.72	1.012
1.748	.020	1.000	.525	6.78	1.013
1.850	.021	1.000	.568	6.67	1.012

TABLE II.- Continued

(b) x/h = 15.0

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.208	.021	1.000	.538	6.79	1.013
-2.036	.020	1.000	.521	6.82	1.014
-1.814	.020	1.000	.491	6.94	1.016
-1.592	.019	1.000	.466	7.00	1.016
-1.450	.018	1.000	.444	7.04	1.017
-1.444	.030	1.000	1.074	5.79	.995
-1.304	.030	1.000	1.092	5.74	.994
-1.074	.030	1.000	1.108	5.71	.994
-.834	.030	1.000	1.116	5.69	.993
-.728	.030	1.000	1.117	5.69	.993
-.584	.030	.999	1.109	5.67	.992
-.532	.029	.998	1.102	5.63	.991
-.490	.028	.997	1.095	5.59	.989
-.438	.026	.995	1.067	5.38	.983
-.394	.023	.994	1.054	5.18	.977
-.370	.023	.993	.953	5.37	.981
-.342	.022	.992	.948	5.25	.978
-.318	.021	.991	.947	5.16	.974
-.288	.020	.989	.947	5.01	.969
-.258	.019	.987	.951	4.90	.964
-.238	.018	.986	.955	4.82	.961
-.208	.017	.984	1.006	4.56	.950
-.136	.016	.979	.959	4.42	.942
-.092	.015	.976	.946	4.35	.937
0.000	.014	.975	.938	4.29	.934
.084	.015	.979	.940	4.35	.939
.124	.015	.981	.944	4.41	.943
.168	.016	.986	.954	4.56	.951
.218	.018	.990	.925	4.80	.962
.246	.018	.992	.921	4.92	.968
.288	.020	.993	.917	5.09	.973
.324	.021	.995	.919	5.24	.979
.370	.023	.996	.930	5.43	.985
.414	.024	.997	.945	5.53	.988
.416	.024	.997	.944	5.52	.987
.484	.025	.998	.960	5.64	.991
.538	.026	.999	.975	5.70	.993
.596	.027	.999	.981	5.74	.994
.834	.028	1.000	.993	5.78	.995
.990	.028	1.000	.995	5.80	.995
1.256	.028	1.000	.987	5.83	.996
1.468	.028	.998	.983	5.83	.995
1.544	.017	.999	.444	6.86	1.014
1.646	.018	1.000	.464	6.80	1.013

TABLE II.- Continued

(c) x/h = 17 ;

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-3.048	.018	1.000	.448	6.88	1.015
-2.704	.017	1.000	.436	6.92	1.015
-2.532	.017	1.000	.429	6.94	1.016
-2.218	.017	1.000	.415	7.00	1.016
-1.932	.017	1.000	.402	7.04	1.017
-1.726	.026	1.000	.871	6.03	1.000
-1.572	.027	1.000	.910	5.99	1.000
-1.436	.028	1.000	.957	5.94	.999
-1.284	.029	1.000	1.000	5.90	.998
-1.154	.030	1.000	1.034	5.86	.997
-.896	.030	1.000	1.074	5.76	.995
-.732	.029	1.000	1.070	5.74	.994
-.616	.029	1.000	1.059	5.71	.993
-.558	.028	.999	1.052	5.67	.992
-.466	.026	.997	1.034	5.53	.988
-.420	.025	.996	1.023	5.44	.985
-.378	.024	.995	1.014	5.30	.981
-.306	.021	.993	1.014	5.06	.973
-.232	.019	.990	1.034	4.73	.960
-.198	.018	.988	1.084	4.49	.949
-.140	.017	.984	1.049	4.43	.945
-.100	.017	.981	1.048	4.36	.940
-.066	.016	.979	1.047	4.33	.938
-.020	.016	.977	1.048	4.33	.937
.042	.017	.976	1.054	4.36	.938
.102	.017	.978	1.062	4.39	.940
.170	.018	.983	1.069	4.49	.947
.224	.019	.988	.949	4.94	.966
.230	.020	.988	.948	5.00	.968
.266	.021	.990	.946	5.13	.973
.290	.021	.991	.947	5.19	.976
.350	.023	.994	.955	5.41	.983
.410	.024	.995	.963	5.53	.987
.476	.026	.997	.970	5.65	.991
.566	.027	.999	.984	5.75	.994
.750	.028	1.000	.996	5.80	.996
1.006	.028	1.000	.996	5.83	.996
1.302	.028	1.000	.991	5.84	.997
1.528	.028	1.000	.982	5.84	.996
1.722	.027	1.000	.965	5.81	.996

TABLE II.- Continued

(d) x/h = 20.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.402	.029	1.000	.951	6.03	1.000
-4.216	.028	1.000	.898	6.08	1.001
-4.054	.027	1.00/	.857	6.12	1.002
-3.928	.026	1.00\	.822	6.18	1.003
-3.786	.025	1.000	.779	6.24	1.004
-3.656	.025	1.000	.743	6.30	1.006
-3.516	.024	1.000	.707	6.36	1.007
-3.410	.023	1.000	.672	6.40	1.007
-3.346	.022	1.000	.648	6.41	1.007
-3.212	.021	1.000	.603	6.41	1.007
-3.108	.015	1.000	.348	7.15	1.018
-2.916	.015	1.000	.347	7.13	1.018
-2.538	.014	1.000	.346	7.05	1.017
-2.328	.014	1.000	.343	7.04	1.017
-2.218	.022	1.000	.654	6.36	1.007
-2.092	.023	1.000	.697	6.30	1.005
-2.022	.023	1.000	.719	6.27	1.005
-1.95ξ	.024	.999	.733	6.26	1.004
-1.838	.025	.999	.760	6.23	1.003
-1.690	.025	.999	.793	6.18	1.003
-1.558	.026	.999	.822	6.14	1.002
-1.442	.026	.999	.847	6.10	1.001
-1.284	.027	.999	.883	6.04	1.000
-1.154	.027	.999	.916	5.99	.999
-1.034	.028	.999	.944	5.94	.998
-.854	.028	.999	.984	5.86	.996
-.778	.028	.999	.999	5.83	.996
-.704	.028	.999	1.011	5.79	.995
-.628	.028	.999	1.015	5.72	.994
-.548	.026	.999	1.008	5.62	.991
-.478	.025	.999	.999	5.49	.988
-.428	.024	.998	.994	5.38	.984
-.366	.022	.996	.989	5.24	.979
-.292	.020	.993	.993	4.98	.970
-.238	.019	.994	1.006	4.78	.963
-.184	.018	.999	1.021	4.63	.960
-.106	.017	.980	1.031	4.48	.945
-.062	.017	.977	1.026	4.45	.942
-.020	.017	.974	1.026	4.45	.941
.022	.017	.974	1.028	4.46	.942
.056	.017	.974	1.031	4.49	.943
.116	.018	.976	1.030	4.61	.948
.176	.019	.980	1.020	4.75	.956
.246	.021	.985	1.013	4.98	.966
.318	.023	.992	1.019	5.20	.976

TABLE II.- Continued

(d)   x/h = 20.1 — Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
.394	.025	.995	1.040	5.39	.983
.470	.027	.997	1.074	5.52	.987
.514	.028	.997	1.090	5.58	.989
.570	.029	.998	1.102	5.63	.991
.634	.029	.998	1.103	5.63	.991
.696	.028	.999	.994	5.82	.995
.968	.028	.999	.993	5.82	.996
1.306	.028	.999	.984	5.87	.997
1.610	.028	1.000	.977	5.88	.997
1.914	.028	.998	.953	5.89	.997
2.114	.019	.999	.510	6.64	1.011
2.242	.019	1.000	.525	6.66	1.011
2.370	.020	1.000	.541	6.66	1.011
2.534	.021	1.000	.565	6.64	1.011
2.736	.022	1.000	.602	6.59	1.010
2.936	.023	1.000	.651	6.48	1.009
3.060	.023	1.000	.680	6.43	1.008
3.226	.024	1.000	.722	6.36	1.007
3.480	.026	1.000	.789	6.25	1.005
3.640	.027	1.000	.834	6.18	1.003
3.926	.028	1.000	.914	6.09	1.002
4.216	.030	1.000	1.004	5.99	1.000

TABLE II.- Continued

(e) x/h = 22.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.836	.029	1.000	.973	6.02	1.000
-4.578	.028	1.000	.911	6.08	1.001
-4.418	.027	1.000	.865	6.14	1.003
-4.264	.026	1.000	.823	6.20	1.004
-4.110	.026	1.000	.789	6.24	1.004
-3.994	.025	1.000	.758	6.29	1.005
-3.892	.024	1.000	.736	6.31	1.006
-3.766	.024	1.000	.699	6.38	1.007
-3.518	.023	1.000	.648	6.46	1.008
-3.310	.022	1.000	.603	6.57	1.010
-3.190	.021	1.000	.579	6.59	1.010
-3.080	.020	1.000	.556	6.62	1.011
-2.988	.020	1.000	.536	6.64	1.011
-2.890	.019	1.000	.614	6.11	1.002
-2.774	.018	1.000	.798	5.18	.980
-2.710	.016	1.000	.850	4.76	.966
-2.660	.015	1.000	.828	4.66	.962
-2.450	.020	1.000	.613	6.31	1.006
-2.598	.019	1.000	.755	5.50	.989
-2.338	.021	.999	.660	6.18	1.003
-2.212	.022	.999	.638	6.38	1.006
-2.094	.022	.999	.643	6.42	1.007
-1.936	.023	.999	.667	6.39	1.007
-1.696	.024	.999	.711	6.30	1.005
-1.494	.024	.999	.753	6.22	1.004
-1.312	.025	.999	.793	6.15	1.002
-1.136	.026	.999	.835	6.07	1.001
-.996	.026	.999	.866	6.02	1.000
-.900	.026	1.000	.887	5.98	.999
-.752	.027	1.000	.917	5.92	.998
-.672	.027	1.000	.929	5.88	.997
-.520	.026	.999	.945	5.73	.994
-.448	.025	.996	.945	5.62	.989
-.398	.024	.993	.946	5.52	.986
-.336	.023	.990	.948	5.39	.981
-.268	.021	.984	.956	5.19	.972
-.192	.020	.980	.969	4.97	.963
-.104	.018	.977	.996	4.74	.954
-.102	.019	.977	.997	4.75	.954
0.000	.018	.977	1.019	4.61	.949
.104	.018	.983	1.028	4.62	.952
.224	.019	.991	1.019	4.79	.963
.328	.021	.995	1.009	5.09	.975
.414	.023	.998	1.018	5.27	.981
.508	.026	1.000	1.043	5.46	.987

TABLE II.- Continued

(e) x/h = 22.4 – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
.590	.028	1.000	1.071	5.58	.990
.666	.029	1.000	1.086	5.65	.992
.756	.030	1.000	1.101	5.69	.993
.846	.030	1.000	1.113	5.70	.993
.928	.031	1.000	1.125	5.71	.993
1.014	.031	1.000	1.135	5.71	.993
1.254	.029	1.000	1.089	5.64	.992
1.410	.029	1.000	1.016	5.82	.996
1.684	.029	1.000	.998	5.86	.997
1.956	.029	1.000	.988	5.89	.997
2.208	.028	1.000	.979	5.89	.997
2.554	.020	1.000	.590	6.35	1.006
2.756	.021	1.900	.672	6.12	1.002
3.136	.022	1.000	.654	6.40	1.007

TABLE II.- Continued

(f) x/h = 27.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-5.096	.026	1.000	.831	6.16	1.003
-4.930	.026	1.000	.806	6.18	1.003
-4.702	.025	1.000	.753	6.26	1.005
-4.468	.024	1.000	.703	6.34	1.006
-4.188	.022	1.000	.647	6.46	1.008
-3.994	.022	1.000	.619	6.51	1.009
-3.758	.021	1.000	.578	6.61	1.011
-3.648	.021	1.000	.565	6.62	1.011
-3.496	.020	1.000	.547	6.64	1.011
-3.290	.019	1.000	.521	6.67	1.012
-3.126	.027	1.000	.926	5.93	.998
-2.832	.027	1.000	.927	5.94	.998
-2.552	.027	1.000	.921	5.93	.998
-2.302	.027	1.000	.915	5.93	.998
-2.122	.026	1.000	.907	5.92	.998
-2.026	.020	1.000	.552	6.55	1.010
-1.880	.020	1.000	.575	6.48	1.009
-1.736	.021	1.000	.599	6.44	1.008
-1.618	.021	1.000	.615	6.41	1.008
-1.480	.021	1.000	.636	6.38	1.007
-1.358	.022	1.000	.657	6.34	1.006
-1.224	.022	1.000	.677	6.30	1.006
-1.036	.023	1.000	.706	6.24	1.004
-.876	.023	1.000	.730	6.18	1.003
-.696	.023	1.000	.746	6.07	1.001
-.606	.022	.999	.748	6.00	.999
-.498	.021	.997	.750	5.90	.996
-.424	.020	.996	.749	5.74	.992
-.318	.019	.992	.750	5.52	.985
-.244	.018	.989	.756	5.32	.978
-.164	.018	.985	.767	5.19	.973
-.106	.017	.983	.777	5.10	.969
-.038	.017	.982	.788	5.02	.966
.052	.017	.982	.798	4.99	.965
.142	.017	.984	.807	4.99	.966
.208	.017	.988	.815	5.04	.969
.286	.018	.991	.822	5.12	.974
.372	.019	.995	.835	5.26	.980
.492	.021	.997	.862	5.48	.986
.608	.024	.998	.900	5.64	.991
.684	.025	.999	.930	5.71	.993
.778	.027	1.000	.960	5.79	.995
.844	.028	1.000	.979	5.82	.996
.926	.028	1.000	.996	5.84	.996
1.032	.029	1.000	1.013	5.85	.997

TABLE II.- Continued

(f) x/h = 27.4 – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.278	.029	1.000	1.033	5.84	.996
1.510	.030	1.000	1.041	5.84	.996
1.828	.030	1.000	1.059	5.82	.996
2.040	.028	1.000	.948	5.95	.999
2.110	.028	1.000	.946	5.93	.998
2.346	.028	1.000	.947	5.92	.998

TABLE II.- Continued

(g) x/h = 32.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.524	.023	1.000	.669	6.46	1.008
-4.366	.023	1.000	.644	6.49	1.009
-4.206	.022	1.000	.620	6.54	1.010
-4.052	.022	1.000	.596	6.60	1.011
-3.946	.021	1.000	.582	6.63	1.011
-3.820	.029	1.000	.988	5.93	.998
-3.622	.029	1.000	.993	5.93	.998
-3.440	.029	1.000	.990	5.94	.999
-3.256	.029	1.000	.983	5.96	.999
-3.080	.029	1.000	.978	5.96	.999
-2.862	.029	1.000	.977	5.97	.999
-2.564	.029	1.000	.983	5.95	.999
-2.364	.029	1.000	.989	5.95	.999
-2.082	.029	1.000	.997	5.95	.999
-1.878	.029	1.000	.999	5.93	.998
-1.648	.029	1.000	1.000	5.90	.998
-1.470	.029	1.000	.994	5.89	.997
-1.340	.028	1.000	.987	5.87	.997
-1.096	.021	1.000	.621	6.40	1.007
-.944	.021	1.000	.631	6.31	1.006
-.738	.020	.999	.638	6.20	1.003
-.600	.019	.998	.637	6.07	1.000
-.452	.018	.994	.637	5.85	.993
-.306	.017	.989	.640	5.62	.986
-.184	.017	.984	.650	5.43	.979
-.052	.016	.983	.664	5.28	.974
.010	.016	.984	.671	5.23	.973
.084	.016	.986	.678	5.23	.974
.130	.016	.987	.682	5.21	.974
.184	.016	.989	.687	5.21	.975
.242	.016	.992	.690	5.24	.977
.298	.017	.994	.699	5.26	.979
.368	.017	.996	.706	5.31	.982
.440	.018	.998	.716	5.39	.985
.494	.018	.998	.723	5.45	.986
.542	.019	.998	.734	5.52	.988
.596	.020	.999	.746	5.61	.990
.640	.020	.999	.755	5.68	.992
.692	.021	.999	.770	5.76	.994
.744	.022	1.000	.785	5.85	.997
.790	.023	1.000	.798	5.86	.997
.852	.023	.999	.815	5.89	.997
.918	.024	1.000	.834	5.93	.998
.980	.025	1.000	.851	5.95	.999
1.042	.026	1.000	.862	5.97	.999

TABLE II.- Continued

(g) $x/h = 32.4$ – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.140	.026	1.000	.883	5.98	.999
1.302	.027	1.000	.910	5.98	.999
1.464	.028	1.000	.938	5.96	.999
1.646	.029	1.000	.967	5.94	.999
1.828	.029	1.000	.998	5.9?	.998
2.086	.030	1.000	1.036	5.8?	.997
2.270	.030	1.000	1.052	5.85	.997
2.474	.030	1.000	1.060	5.86	.997
2.690	.031	1.000	1.071	5.89	.998
3.032	.031	1.000	1.086	5.84	.996

TABLE II.- Continued

(h) x/h = 38.3

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.366	.028	1.000	1.016	5.73	.994
-3.946	.028	1.000	1.008	5.74	.994
-3.766	.028	1.000	1.009	5.74	.994
-3.608	.028	1.000	1.011	5.73	.994
-3.418	.028	1.000	1.017	5.72	.994
-3.186	.028	1.000	1.023	5.71	.993
-3.054	.028	1.000	1.027	5.70	.993
-2.872	.028	1.000	1.029	5.70	.993
-2.692	.028	1.000	1.029	5.70	.993
-2.528	.028	1.000	1.026	5.70	.993
-2.346	.028	1.000	1.023	5.71	.993
-2.074	.028	1.000	1.015	5.75	.994
-1.884	.028	1.000	1.009	5.76	.995
-1.716	.028	1.000	1.004	5.78	.995
-1.544	.028	1.000	1.001	5.78	.995
-1.288	.028	1.000	.990	5.80	.995
-1.106	.027	1.000	.976	5.80	.995
-.972	.027	1.000	.962	5.78	.995
-.818	.025	1.000	.945	5.70	.993
-.752	.025	1.000	.931	5.66	.992
-.654	.024	.999	.915	5.59	.990
-.616	.023	.998	.908	5.55	.989
-.572	.023	.998	.903	5.52	.988
-.498	.022	.996	.895	5.42	.984
-.446	.021	.994	.890	5.35	.982
-.372	.020	.993	.884	5.25	.978
-.300	.020	.990	.877	5.16	.974
-.242	.019	.988	.868	5.14	.972
-.188	.019	.988	.834	5.16	.973
-.116	.014	.986	.588	5.31	.976
-.002	.014	.984	.588	5.31	.975
.108	.015	.986	.588	5.34	.977
.212	.015	.988	.590	5.41	.980
.306	.016	.991	.596	5.47	.983
.438	.017	.996	.610	5.60	.989
.514	.017	.997	.622	5.69	.992
.620	.018	.999	.642	5.82	.996
.710	.019	.999	.661	5.94	.998
.846	.021	1.000	.695	6.06	1.001
.968	.022	1.000	.723	6.09	1.002
1.088	.023	1.000	.749	6.12	1.002
1.284	.024	1.000	.781	6.12	1.002
1.416	.025	1.000	.799	6.12	1.002
1.584	.026	1.000	.824	6.10	1.002
1.754	.026	1.000	.850	6.08	1.001

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TABLE II.- Continued

(h) x/h = 38.3 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.936	027	1.000	.878	6.05	1.001

TABLE II.- Continued

(i) x/h = 43.3

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.216	.029	1.000	1.096	5.62	.991
-3.902	.029	1.000	1.130	5.59	.991
-3.546	.030	1.000	1.158	5.57	.990
-3.312	.030	1.000	1.165	5.53	.989
-2.906	.029	1.000	1.163	5.51	.989
-2.690	.029	1.000	1.155	5.51	.989
-2.540	.029	1.000	1.146	5.50	.989
-2.252	.028	1.000	1.121	5.52	.989
-2.002	.028	1.000	1.094	5.57	.990
-1.730	.028	1.000	1.070	5.60	.991
-1.456	.027	1.000	1.044	5.63	.992
-1.206	.027	1.000	1.018	5.66	.992
-1.070	.027	1.000	1.002	5.66	.992
-.946	.026	1.000	.981	5.63	.992
-.838	.025	1.000	.964	5.59	.991
-.738	.024	1.000	.949	5.51	.989
-.626	.022	.999	.936	5.40	.985
-.528	.021	.998	.929	5.27	.981
-.436	.020	.998	.926	5.16	.978
-.342	.020	.995	.926	5.07	.974
-.252	.019	.991	.926	5.01	.970
-.160	.019	.989	.928	4.95	.967
-.102	.019	.988	.929	4.93	.966
-.008	.019	.986	.929	4.92	.965
.078	.019	.987	.928	4.94	.965
.170	.019	.989	.928	4.98	.968
.240	.019	.990	.928	5.03	.970
.328	.020	.994	.928	5.11	.975
.404	.021	.997	.932	5.23	.979
.498	.022	.998	.938	5.37	.984
.582	.023	.999	.943	5.49	.987
.684	.024	1.000	.917	5.67	.992
.772	.020	1.000	.669	6.12	1.002
.960	.021	1.000	.686	6.12	1.002
1.110	.022	1.000	.700	6.13	1.002
1.276	.022	1.000	.720	6.11	1.002
1.446	.023	1.000	.741	6.08	1.001
1.664	.023	1.000	.770	6.04	1.001
1.862	.024	1.000	.796	6.01	1.000
2.094	.024	1.000	.825	5.98	.999
2.324	.025	1.000	.858	5.94	.999
2.576	.026	1.000	.892	5.90	.998
2.738	.026	1.000	.913	5.88	.997
2.882	.027	1.000	.933	5.85	.997
3.082	.027	1.000	.957	5.83	.996

TABLE II.- Continued

(i) x/h = 43.3 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.254	.027	1.000	.981	5.81	.996
3.438	.028	1.000	1.002	5.79	.995
3.616	.028	1.000	1.020	5.79	.995
3.780	.029	1.000	1.032	5.79	.995

TABLE II.- Continued

(j)   x/h = 47.0

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.192	.029	1.000	1.157	5.47	.988
-3.992	.029	1.000	1.186	5.45	.987
-3.798	.030	1.000	1.207	5.43	.987
-3.516	.030	1.000	1.235	5.40	.986
-3.242	.030	1.000	1.240	5.40	.986
-3.136	.030	1.000	1.235	5.40	.986
-2.850	.029	1.000	1.212	5.40	.986
-2.644	.029	1.000	1.184	5.44	.987
-2.450	.029	1.000	1.160	5.45	.987
-2.292	.028	.999	1.141	5.46	.987
-2.062	.028	.999	1.119	5.50	.988
-1.812	.028	.999	1.103	5.52	.989
-1.580	.028	.999	1.085	5.54	.989
-1.352	.027	.999	1.068	5.57	.990
-1.112	.027	.999	1.049	5.58	.990
-.986	.027	.999	1.035	5.57	.990
-.856	.026	.998	1.020	5.54	.989
-.746	.025	.997	1.006	5.49	.987
-.636	.024	.997	.992	5.41	.985
-.544	.023	.996	.981	5.35	.982
-.412	.022	.994	.972	5.18	.977
-.280	.020	.991	.966	5.05	.971
-.142	.020	.987	.964	4.96	.966
-.024	.019	.985	.963	4.91	.964
.076	.019	.985	.961	4.91	.964
.198	.019	.987	.959	4.94	.966
.280	.020	.991	.959	4.99	.969
.378	.020	.993	.958	5.07	.973
.468	.021	.995	.960	5.19	.977
.584	.023	.996	.965	5.35	.982
.680	.024	.997	.976	5.44	.985
.778	.025	.997	.985	5.55	.988
.892	.026	.998	1.000	5.62	.990
.980	.027	.999	1.008	5.66	.992
1.144	.027	.999	1.015	5.69	.993
1.332	.027	.997	1.013	5.70	.992
1.402	.022	.998	.692	6.18	1.002
1.686	.023	1.000	.715	6.16	1.003
1.842	.023	1.000	.729	6.16	1.003
2.046	.023	.999	.749	6.14	1.002
2.256	.024	.999	.776	6.09	1.001
2.472	.024	1.000	.798	6.07	1.001
2.694	.025	.999	.826	6.03	1.000
2.958	.025	.999	.857	5.98	.999

TABLE II.- Continued

(k) x/h = 55.3

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-3.636	.027	1.000	.919	5.94	.999
-3.324	.027	1.000	.906	5.97	.999
-3.000	.027	1.000	.900	5.97	.999
-2.700	.027	1.000	.903	5.95	.999
-2.476	.027	1.000	.907	5.94	.998
-2.260	.027	1.000	.916	5.91	.998
-2.078	.027	1.000	.925	5.88	.997
-1.812	.027	1.000	.944	5.86	.997
-1.460	.027	1.000	.970	5.81	.996
-1.262	.027	1.000	.979	5.80	.995
-.998	.027	.999	.986	5.77	.995
-.774	.027	.998	.986	5.72	.993
-.592	.026	.996	.972	5.63	.990
-.500	.025	.994	.962	5.57	.987
-.408	.024	.992	.955	5.50	.984
-.308	.023	.989	.946	5.42	.981
-.212	.022	.988	.941	5.31	.977
-.152	.021	.986	.938	5.24	.975
-.066	.021	.986	.937	5.15	.972
.048	.020	.987	.939	5.06	.970
.140	.020	.989	.939	5.02	.969
.238	.019	.992	.940	5.00	.970
.334	.019	.995	.938	5.00	.972
.420	.020	.997	.939	5.02	.973
.494	.020	.998	.939	5.06	.975
.594	.021	.998	.939	5.14	.978
.676	.021	.998	.943	5.22	.980
.766	.022	.999	.949	5.33	.983
.860	.023	1.000	.957	5.44	.987
.938	.024	1.000	.967	5.49	.988
1.026	.025	1.000	.980	5.55	.990
1.132	.026	1.000	.990	5.61	.991
1.238	.026	1.000	.996	5.65	.992
1.358	.027	1.000	1.004	5.67	.993
1.528	.027	1.000	1.010	5.70	.993
1.820	.028	1.000	1.008	5.74	.994
2.114	.028	1.000	1.005	5.76	.994
2.330	.028	1.000	.995	5.78	.995
2.808	.022	1.000	.696	6.21	1.004
2.972	.023	1.000	.704	6.21	1.004
3.122	.023	1.000	.712	6.22	1.004
3.304	.023	1.000	.720	6.23	1.004
3.444	.023	1.000	.733	6.21	1.004
3.636	.024	1.000	.752	6.18	1.003
3.774	.024	1.000	.766	6.16	1.003

TABLE II.- Continued

(k) x/h = 55.3 – Concluded

y/h	$p_{t.2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.980	.025	1.000	.786	6.13	1.002
4.114	.025	1.000	.798	6.11	1.002

TABLE II.- Concluded

(l)   x/h = 59.0

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-3.176	.026	.992	.893	5.91	.994
-3.008	.026	.992	.890	5.89	.993
-2.634	.026	.991	.903	5.86	.992
-2.288	.026	.991	.925	5.79	.991
-1.930	.026	.992	.934	5.80	.991
-1.726	.026	.992	.937	5.80	.991
-1.506	.026	.992	.940	5.79	.991
-1.298	.026	.992	.945	5.78	.991
-1.006	.026	.991	.946	5.72	.989
-.902	.025	.990	.940	5.67	.987
-.830	.025	.989	.938	5.62	.986
-.746	.024	.988	.940	5.54	.984
-.662	.023	.987	.926	5.49	.982
-.578	.022	.986	.920	5.43	.980
-.502	.022	.986	.915	5.35	.977
-.422	.021	.983	.912	5.27	.974
-.356	.020	.981	.911	5.20	.971
-.292	.020	.980	.909	5.16	.969
-.174	.020	.978	.909	5.10	.966
-.032	.019	.976	.909	5.07	.965
.092	.020	.979	.903	5.10	.967
.300	.021	.984	.901	5.23	.974
.372	.021	.986	.903	5.30	.976
.452	.022	.987	.906	5.39	.979
.530	.022	.988	.911	5.47	.982
.610	.023	.989	.917	5.53	.984
.694	.024	.989	.928	5.60	.985
.796	.025	.990	.937	5.66	.987
.884	.026	.990	.948	5.70	.988
.970	.026	.991	.952	5.74	.990
1.124	.026	.991	.956	5.78	.990
1.460	.027	.991	.959	5.78	.990
1.736	.026	.991	.962	5.76	.990
2.080	.027	.991	.968	5.76	.990
2.442	.027	.991	.976	5.75	.990
2.696	.027	.991	.982	5.75	.990
2.998	.027	.990	.981	5.76	.990
3.204	.022	.991	.695	6.19	.999
3.462	.023	.991	.696	6.25	1.000

TABLE III.- EXPERIMENTAL DATA FOR 10° SHOCK-GENERATOR DEFLECTION ANGLE

(a) x/h = 7.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.490	.055	1.000	2.438	5.23	.981
-2.372	.057	1.000	2.501	5.24	.981
-2.286	.058	1.000	2.484	5.33	.984
-2.196	.060	1.000	2.387	5.51	.989
-2.098	.061	1.000	2.233	5.74	.994
-1.988	.060	1.000	2.042	6.00	1.000
-1.874	.059	1.000	1.828	6.27	1.005
-1.786	.058	1.000	1.662	6.49	1.009
-1.694	.056	.998	1.551	6.60	1.010
-1.624	.025	.999	.572	7.21	1.019
-1.528	.023	1.000	.541	7.13	1.018
-1.422	.021	1.000	.512	7.09	1.018
-1.334	.020	1.000	.481	7.06	1.017
-1.254	.019	1.000	.460	7.03	1.017
-1.116	.017	1.000	.400	7.19	1.019
-.962	.015	1.000	.369	7.08	1.017
-.826	.014	.999	.326	7.09	1.017
-.670	.012	.998	.280	7.12	1.017
-.562	.024	.999	.861	5.81	.995
-.450	.024	.999	.845	5.85	.996
-.350	.023	.997	.811	5.80	.994
-.312	.021	.994	.802	5.65	.989
-.274	.019	.991	.799	5.29	.978
-.230	.016	.985	.836	4.75	.958
-.186	.012	.977	.841	4.13	.927
-.142	.009	.970	.840	3.49	.885
-.100	.007	.968	.846	3.06	.848
-.056	.006	.970	.850	2.81	.822
0.000	.005	.974	.845	2.69	.810
.036	.006	.976	.837	2.76	.819
.066	.006	.976	.827	2.95	.840
.080	.007	.975	.802	3.14	.858
.108	.008	.974	.812	3.29	.870
.142	.010	.975	.800	3.72	.903
.184	.012	.979	.810	4.30	.937
.196	.015	.980	.787	4.76	.956
.222	.016	.987	.793	4.93	.965
.260	.019	.994	.789	5.36	.982
.306	.022	.998	.816	5.67	.991
.352	.023	1.000	.843	5.77	.995
.404	.024	1.000	.862	5.79	.995
.566	.024	.999	.835	5.90	.997
.664	.013	.999	.291	7.14	1.018
.768	.014	1.000	.315	7.20	1.019
.900	.015	1.000	.364	7.10	1.018

TABLE III.- Continued

(a) $x/h = 7.1$ — Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.020	.016	1.000	.384	7.16	1.019
1.200	.018	1.000	.439	7.11	1.018
1.340	.020	1.000	.510	6.90	1.015
1.542	.023	1.000	.622	6.66	1.011
1.668	.025	1.000	.714	6.47	1.009
1.798	.027	1.000	.812	6.31	1.006
1.952	.029	1.000	.925	6.17	1.003
2.088	.031	1.000	1.026	6.05	1.001
2.226	.033	1.000	1.124	5.93	.998
2.366	.034	1.000	1.199	5.80	.996
2.562	.034	1.000	1.246	5.71	.994
2.840	.034	1.000	1.261	5.69	.993

TABLE III.- Continued

(b)   x/h = 12.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-3.178	.032	1.000	1.141	5.77	.995
-3.082	.032	1.000	1.161	5.78	.995
-2.986	.033	1.000	1.184	5.78	.995
-2.814	.033	1.000	1.193	5.79	.995
-2.626	.033	1.000	1.182	5.82	.996
-2.364	.033	1.000	1.129	5.91	.998
-2.084	.032	1.000	1.033	6.11	1.002
-1.852	.031	1.000	.939	6.35	1.006
-1.638	.031	.999	.856	6.58	1.010
-1.424	.030	.999	.769	6.86	1.014
-1.224	.029	.998	.695	7.10	1.017
-1.094	.028	.998	.663	7.20	1.018
-.970	.028	.999	.628	7.31	1.020
-.840	.043	1.000	1.598	5.73	.994
-.748	.044	1.000	1.612	5.75	.994
-.638	.045	1.000	1.584	5.85	.997
-.424	.044	.998	1.479	6.04	1.000
-.256	.043	.985	1.444	6.03	.993
-.212	.042	.981	1.463	5.93	.989
-.186	.041	.979	1.494	5.80	.985
-.142	.039	.977	1.538	5.55	.978
-.104	.036	.978	1.566	5.27	.971
-.070	.032	.979	1.608	4.90	.961
-.032	.026	.979	1.664	4.36	.939
-.002	.023	.960	1.670	4.02	.923
.014	.021	.982	1.677	3.87	.915
.036	.019	.984	1.688	3.67	.903
.060	.018	.987	1.708	3.54	.896
.088	.018	.989	1.730	3.46	.891
.132	.018	.991	1.753	3.48	.894
.164	.019	.993	1.758	3.56	.900
.238	.017	.996	.923	4.76	.964
.280	.018	.998	.919	4.82	.967
.316	.019	.998	.910	5.03	.974
.358	.021	.999	.910	5.26	.982
.398	.022	.999	.919	5.44	.987
.446	.024	1.000	.931	5.56	.990
.488	.025	1.000	.940	5.63	.992
.572	.026	1.000	.951	5.70	.993
.738	.026	1.000	.924	5.85	.997
.952	.026	1.000	.913	5.90	.998
1.202	.016	1.000	.392	6.98	1.016
1.304	.016	1.000	.407	6.95	1.016
1.460	.017	1.000	.438	6.89	1.015
1.572	.018	1.000	.460	6.89	1.015

TABLE III.- Continued

(b) x/h = 12.1 – Concluded

	$P_{t,2}/P_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
.656	.019	1.030	.476	6.89	1.015
1.782	.020	1.000	.512	6.80	1.014
1.894	.021	1.000	.552	6.69	1.012
2.012	.022	1.000	.595	6.60	1.011

TABLE III.- Continued

(c) x/h = 15.0

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.738	.026	1.000	.680	6.79	1.013
-2.438	.026	1.000	.686	6.71	1.012
-2.080	.025	1.000	.715	6.51	1.009
-1.798	.025	1.000	.722	6.40	1.007
-1.610	.024	1.000	.723	6.36	1.007
-1.442	.024	1.000	.719	6.34	1.006
-1.278	.024	1.000	.731	6.25	1.005
-1.078	.023	1.000	.727	6.20	1.004
-.978	.036	1.000	1.281	5.79	.995
-.892	.036	1.000	1.306	5.77	.995
-.752	.037	1.000	1.335	5.75	.994
-.620	.037	1.000	1.361	5.70	.993
-.472	.036	1.000	1.417	5.56	.990
-.360	.036	1.000	1.503	5.36	.985
-.236	.036	.999	1.580	5.23	.981
-.178	.037	.998	1.648	5.17	.978
-.122	.037	.999	1.706	5.14	.978
-.052	.039	1.000	1.776	5.13	.978
-.010	.040	1.000	1.822	5.15	.979
.032	.041	1.000	1.859	5.17	.979
.084	.042	1.000	1.890	5.18	.980
.130	.042	1.000	1.916	5.16	.979
.190	.042	.999	1.960	5.07	.976
.256	.039	.994	1.987	4.84	.965
.306	.035	.986	2.017	4.56	.952
.340	.032	.981	2.010	4.35	.940
.370	.030	.977	2.005	4.22	.932
.402	.028	.975	1.995	4.10	.925
.438	.027	.975	1.987	4.01	.921
.472	.026	.977	1.982	3.98	.919
.506	.026	.981	1.984	3.97	.921
.542	.027	.986	1.998	4.01	.925
.574	.028	.990	2.014	4.07	.931
.606	.029	.994	2.032	4.14	.936
.632	.031	.996	2.052	4.22	.941
.658	.032	.998	2.069	4.30	.946
.686	.034	.999	2.092	4.40	.951
.726	.036	.999	2.129	4.54	.957
.770	.040	1.000	2.155	4.71	.964
.808	.042	1.000	2.195	4.82	.968
.840	.044	1.000	2.227	4.91	.971
.882	.047	1.000	2.268	4.99	.974
.926	.049	1.000	2.323	5.03	.975
.972	.050	.998	2.358	5.06	.975
1.028	.051	.998	2.379	5.08	.976

TABLE III.- Continued

(c) x/h = 15.0 – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.146	.028	1.000	.992	5.81	.996
1.184	.027	1.000	.988	5.77	.995
1.362	.027	.999	.986	5.75	.994
1.494	.027	.998	.984	5.73	.993
1.596	.017	.998	.451	6.76	1.012
1.716	.018	.998	.463	6.79	1.012
1.936	.019	.998	.481	6.91	1.014
2.072	.020	.998	.492	6.97	1.015
2.212	.021	.998	.503	7.05	1.016
2.362	.022	.999	.516	7.15	1.018
2.496	.023	.999	.537	7.14	1.018
2.616	.024	.999	.564	7.09	1.017

TABLE III.- Continued

(d) x/h = 17.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.616	.021	1.000	.521	7.00	1.016
-2.422	.021	1.000	.527	6.94	1.016
-2.076	.021	1.000	.543	6.79	1.014
-1.696	.020	1.000	.556	6.65	1.011
-1.356	.020	1.000	.565	6.52	1.009
-1.214	.030	1.000	.915	6.27	1.005
-1.046	.031	1.000	.951	6.22	1.004
-.886	.031	1.000	.980	6.14	1.002
-.732	.030	1.000	1.034	5.94	.999
-.524	.030	.999	1.166	5.60	.991
-.440	.031	.999	1.226	5.53	.988
-.396	.032	.998	1.259	5.52	.988
-.348	.033	.998	1.293	5.55	.989
-.302	.034	.998	1.328	5.58	.989
-.252	.036	.998	1.368	5.61	.990
-.210	.037	.998	1.394	5.61	.990
-.140	.038	.998	1.436	5.60	.990
-.060	.039	.999	1.484	5.58	.990
.034	.039	.999	1.535	5.53	.989
.146	.040	1.000	1.520	5.59	.991
.240	.040	1.000	1.569	5.53	.989
.340	.040	1.000	1.621	5.43	.986
.436	.038	1.000	1.665	5.20	.980
.480	.036	.998	1.677	5.08	.976
.524	.034	.996	1.694	4.93	.970
.570	.032	.993	1.708	4.76	.962
.628	.030	.986	1.742	4.55	.951
.676	.028	.982	1.747	4.42	.944
.726	.028	.980	1.750	4.35	.939
.770	.027	.980	1.761	4.31	.938
.822	.028	.984	1.774	4.31	.939
.864	.028	.988	1.788	4.34	.942
.920	.029	.992	1.813	4.40	.948
.962	.031	.995	1.841	4.48	.952
1.020	.033	.998	1.865	4.61	.959
1.064	.035	.999	1.888	4.72	.964
1.100	.036	.999	1.911	4.79	.966
1.132	.038	.999	1.932	4.88	.969
1.172	.040	.999	1.970	4.94	.972
1.210	.042	.999	2.003	5.00	.974
1.240	.043	.999	2.032	5.06	.976
1.282	.045	1.000	2.063	5.10	.977
1.332	.046	.999	2.105	5.13	.978
1.374	.047	1.000	2.139	5.15	.979
1.452	.049	1.000	2.201	5.15	.979

TABLE III.- Continued

(d) x/h = 17.4 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.556	.050	1.000	2.262	5.14	.978
1.678	.051	1.000	2.276	5.17	.979
1.808	.018	.998	.470	6.81	1.013
2.876	.023	.999	.571	7.03	1.017
3.266	.026	1.000	.630	7.05	1.017
3.430	.027	1.000	.676	6.94	1.015
3.600	.028	1.000	.722	6.85	1.014
3.858	.030	1.000	.802	6.71	1.012
4.064	.031	1.000	.875	6.58	1.010
4.266	.033	1.000	.950	6.45	1.008
4.426	.033	1.000	1.005	6.35	1.006

TABLE III.- Continued

(e) $x/h = 20.1$

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.394	.033	1.000	1.101	6.04	1.000
-.322	.034	1.000	1.125	6.01	1.000
-.188	.034	1.000	1.170	5.94	.999
-.014	.035	1.000	1.241	5.83	.996
.168	.036	1.000	1.313	5.72	.994
.362	.036	1.000	1.389	5.59	.991
.480	.036	1.000	1.438	5.49	.988
.586	.034	1.000	1.473	5.29	.983
.624	.033	1.000	1.483	5.21	.981
.708	.031	.997	1.402	5.19	.978
.746	.030	.995	1.410	5.10	.975
.786	.029	.992	1.421	5.00	.970
.822	.029	.989	1.432	4.92	.966
.870	.028	.986	1.449	4.82	.961
.906	.027	.984	1.465	4.76	.958
.942	.027	.983	1.476	4.71	.956
.980	.027	.983	1.489	4.68	.955
1.028	.027	.984	1.502	4.67	.955
1.062	.027	.986	1.506	4.67	.955
1.126	.028	.989	1.528	4.70	.958
1.206	.029	.993	1.551	4.77	.963
1.256	.030	.996	1.562	4.85	.967
1.294	.031	.997	1.574	4.90	.969
1.328	.032	.997	1.588	4.97	.972
1.356	.033	.998	1.598	5.04	.974
1.394	.035	.998	1.612	5.10	.976
1.428	.036	.998	1.633	5.15	.978
1.468	.037	.998	1.661	5.21	.979
1.506	.039	.998	1.690	5.26	.981
1.530	.040	.998	1.707	5.29	.982
1.572	.041	.998	1.734	5.33	.983
1.614	.042	.998	1.759	5.35	.984
1.650	.043	.999	1.788	5.36	.984
1.704	.044	.999	1.825	5.36	.984
1.764	.045	.999	1.862	5.36	.984
1.824	.045	.999	1.900	5.36	.984
1.902	.046	.999	1.943	5.35	.984
1.972	.047	.999	1.970	5.35	.984
2.108	.048	.999	2.066	5.28	.982
2.560	.020	.999			
2.642	.021	.998			
2.722	.021	.998			

TABLE III.- Continued

(f) x/h = 22.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.496	.016	1.000	.361	7.20	1.019
-2.300	.015	1.000	.358	7.21	1.019
-2.044	.015	1.000	.357	7.20	1.019
-1.972	.022	1.000	.559	6.89	1.015
-1.874	.023	1.000	.568	6.90	1.015
-1.624	.023	1.000	.585	6.81	1.014
-1.288	.023	1.000	.681	6.33	1.006
-1.170	.023	.999	.721	6.22	1.004
-1.086	.025	.999	.759	6.29	1.005
-1.016	.027	.999	.794	6.40	1.007
-.942	.028	.999	.819	6.42	1.007
-.758	.029	1.000	.871	6.35	1.006
-.580	.030	1.000	.913	6.29	1.005
-.384	.031	1.000	.967	6.21	1.004
-.196	.032	1.000	1.020	6.13	1.002
-.038	.033	1.000	1.068	6.06	1.001
.138	.033	1.000	1.127	5.96	.999
.316	.034	1.000	1.181	5.86	.997
.500	.034	1.000	1.240	5.70	.993
.670	.031	.998	1.273	5.45	.986
.748	.030	.996	1.288	5.29	.981
.786	.029	.995	1.295	5.22	.978
.858	.028	.991	1.307	5.11	.973
.942	.027	.986	1.323	4.99	.967
1.030	.027	.985	1.345	4.90	.963
1.098	.027	.985	1.365	4.86	.962
1.158	.027	.987	1.379	4.86	.963
1.220	.027	.990	1.396	4.87	.964
1.264	.028	.992	1.411	4.89	.966
1.336	.029	.995	1.429	4.93	.969
1.414	.030	.997	1.455	4.99	.972
1.490	.032	.998	1.489	5.09	.976
1.564	.034	.998	1.418	5.36	.984
1.636	.036	.998	1.460	5.43	.986
1.718	.038	.999	1.507	5.50	.988
1.798	.040	.999	1.547	5.54	.989
1.876	.041	1.000	1.591	5.56	.990
1.950	.042	1.000	1.630	5.56	.990
2.016	.043	1.000	1.662	5.55	.990
2.094	.043	1.000	1.703	5.54	.989
2.170	.044	1.000	1.735	5.53	.989
2.254	.045	1.000	1.782	5.49	.988

TABLE III.- Continued

(g) x/h = 27.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-1.560	.022	.999	.527	7.14	1.018
-1.408	.023	.999	.543	7.13	1.018
-1.278	.023	.999	.560	7.09	1.017
-1.096	.024	1.000	.579	7.06	1.017
-.952	.024	1.000	.597	7.02	1.016
-.800	.025	.999	.614	7.01	1.016
-.544	.026	1.000	.647	6.94	1.016
-.348	.026	1.000	.672	6.86	1.014
-.056	.027	1.000	.719	6.73	1.013
.234	.028	1.000	.768	6.62	1.011
.410	.028	1.000	.795	6.56	1.010
.618	.029	1.000	.827	6.48	1.009
.810	.029	1.000	.862	6.34	1.006
.982	.028	1.000	.891	6.18	1.003
1.152	.028	1.000	.917	6.00	1.000
1.272	.027	1.000	.934	5.86	.997
1.412	.025	.998	.951	5.67	.991
1.558	.024	.992	.968	5.50	.984
1.702	.024	.988	.991	5.36	.979
1.752	.023	.987	.998	5.33	.978
1.820	.024	.987	1.011	5.30	.977
1.940	.024	.989	1.035	5.29	.977
2.002	.024	.991	1.047	5.29	.978
2.078	.025	.994	1.065	5.32	.981
2.150	.026	.996	1.084	5.36	.983
2.226	.027	.998	1.105	5.40	.985
2.278	.028	.998	1.125	5.43	.986
2.310	.028	.999	1.141	5.47	.987
2.342	.029	.999	1.150	5.50	.988
2.380	.030	.999	1.165	5.53	.989
2.448	.031	.999	1.191	5.59	.990
2.508	.032	.999	1.214	5.62	.991
2.570	.033	.999	1.244	5.67	.992
2.644	.034	.999	1.272	5.71	.993
2.720	.036	1.000	1.303	5.74	.994
2.792	.037	.999	1.331	5.76	.994
2.880	.038	.999	1.360	5.77	.995
2.966	.039	1.000	1.394	5.77	.995
3.092	.039	1.000	1.438	5.73	.994
3.236	.038	1.000	1.489	5.52	.989
3.386	.038	.999	1.528	5.46	.987
3.456	.038	1.000	1.544	5.47	.988
3.588	.040	1.000	1.592	5.46	.987
3.704	.040	1.000	1.636	5.44	.987
3.844	.041	1.000	1.686	5.43	.987

TABLE III.- Continued

(g) $x/h = 27.4$ – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.950	.042	1.000	1.728	5.42	.986
4.060	.043	1.000	1.776	5.41	.986
4.222	.044	1.000	1.842	5.38	.985
4.382	.045	1.000	1.903	5.34	.984
4.564	.046	1.000	1.966	5.31	.983
4.760	.025	1.000	1.620	4.28	.946

TABLE III. - Continued

(h) x/h = 32.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-1.850	.020	1.000	.531	6.66	1.011
-1.688	.020	1.000	.510	6.86	1.014
-1.362	.021	1.000	.523	6.91	1.015
-1.084	.022	.999	.549	6.86	1.014
-.830	.022	1.000	.568	6.85	1.014
-.562	.023	1.000	.591	6.80	1.014
-.206	.024	1.000	.633	6.68	1.012
.098	.024	1.000	.673	6.60	1.011
.332	.025	1.000	.702	6.52	1.009
.558	.025	1.000	.729	6.40	1.007
.776	.024	1.000	.755	6.24	1.004
1.052	.023	1.000	.779	5.99	1.000
1.200	.022	.998	.792	5.84	.995
1.332	.022	.994	.807	5.73	.991
1.504	.021	.989	.827	5.59	.985
1.802	.022	.990	.873	5.54	.984
1.910	.023	.992	.892	5.58	.986
2.032	.024	.995	.917	5.60	.988
2.106	.025	.997	.936	5.64	.990
2.178	.026	.998	.956	5.68	.992
2.236	.026	.999	.976	5.72	.993
2.318	.028	.999	1.000	5.77	.994
2.404	.029	1.000	1.028	5.82	.996
2.510	.030	1.000	1.056	5.87	.997
2.648	.032	.999	1.103	5.90	.997
2.762	.033	.999	1.135	5.90	.997
2.886	.034	1.000	1.165	5.88	.997
2.990	.034	1.000	1.190	5.86	.997
3.216	.032	1.000	1.240	5.59	.991
3.332	.033	1.000	1.266	5.56	.990
3.486	.033	1.000	1.304	5.55	.990
3.630	.034	1.000	1.347	5.53	.989
3.782	.035	1.000	1.392	5.51	.989
3.930	.036	1.000	1.438	5.49	.988
4.100	.037	1.000	1.487	5.47	.988
4.256	.038	1.000	1.534	5.45	.987
4.442	.039	1.000	1.552	5.48	.988
4.710	.040	1.000	1.637	5.43	.987
4.824	.041	1.000	1.679	5.40	.986
4.982	.042	1.000	1.727	5.37	.985
5.120	.042	1.000	1.775	5.34	.984
5.248	.043	1.000	1.822	5.34	.984
5.432	.044	1.000	1.884	5.32	.984
5.544	.045	1.000	1.897	5.33	.984
5.728	.026	.998	.917	5.88	.996

TABLE III.- Continued

(h) x/h = 32.4 − Concluded

y/h	$P_{t,2}/P_0$	T_t/T_0	$P_{st}/P_{st,\infty}$	M	U/U_∞
5.844	.027	.999	.919	5.91	.997

TABLE III.- Continued

(i) x/h = 38.3

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.398	.026	1.000	.778	6.39	1.007
-2.238	.027	1.000	.787	6.41	1.007
-1.858	.027	1.000	.784	6.45	1.008
-1.538	.027	1.000	.779	6.42	1.008
-1.224	.026	1.000	.774	6.40	1.007
-.942	.020	1.000	.530	6.80	1.014
-.832	.021	1.000	.535	6.82	1.014
-.574	.021	1.000	.547	6.82	1.014
-.366	.022	1.000	.555	6.63	1.014
-.212	.022	1.000	.566	6.80	1.013
-.016	.022	1.000	.581	6.76	1.013
.314	.023	1.000	.606	6.67	1.012
.498	.022	1.000	.617	6.59	1.010
.638	.022	1.000	.626	6.51	1.009
.816	.022	1.000	.636	6.39	1.007
.974	.021	.999	.642	6.27	1.004
1.122	.020	.996	.648	6.17	1.001
1.268	.020	.992	.653	6.07	.997
1.432	.020	.988	.665	5.94	.992
1.516	.019	.988	.673	5.88	.991
1.562	.019	.988	.677	5.85	.991
1.624	.019	.989	.682	5.84	.991
1.752	.020	.990	.695	5.81	.991
1.836	.020	.993	.704	5.81	.992
1.986	.021	.996	.723	5.87	.995
2.128	.022	.998	.745	5.95	.998
2.256	.023	.999	.770	5.96	.999
2.322	.023	.999	.784	5.98	.999
2.436	.025	.999	.809	6.05	1.000
2.546	.026	.999	.834	6.11	1.002
2.666	.027	1.000	.861	6.16	1.003
2.774	.028	1.000	.884	6.20	1.004
2.884	.029	1.000	.907	6.21	1.004
3.002	.030	1.000	.929	6.21	1.004
3.224	.031	1.000	.968	6.18	1.003
3.500	.029	1.000	1.003	5.92	.998
3.710	.030	1.000	1.042	5.90	.998
3.960	.031	1.000	1.092	5.87	.997
4.230	.033	1.000	1.147	5.84	.996
4.478	.034	1.000	1.198	5.82	.996
4.710	.035	1.000	1.249	5.78	.995
4.956	.036	1.000	1.305	5.74	.994
5.162	.037	1.000	1.354	5.70	.993
5.356	.038	1.000	1.404	5.66	.992
5.568	.038	1.000	1.460	5.61	.991

TABLE III.- Continued

(i) x/h = 38.3 — Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
5.790	.039	1.000	1.520	5.57	.990
6.040	.041	1.000	1.539	5.65	.992
6.270	.042	1.000	1.602	5.61	.991
6.488	.042	1.000	1.665	5.51	.989
6.670	.043	1.000	1.723	5.44	.987
6.874	.043	1.000	1.766	5.41	.986
7.016	.044	1.000	1.770	5.44	.987
7.144	.027	1.000	.821	6.34	1.006
7.204	.028	1.000	.823	6.36	1.007

TABLE III.- Continued

(j) $x/h = 43.3$

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-1.798	.027	1.000	.795	6.38	1.007
-1.566	.027	1.000	.793	6.40	1.007
-1.254	.027	1.000	.792	6.38	1.007
-1.048	.027	1.000	.791	6.38	1.007
-.690	.027	1.000	.784	6.41	1.007
-.364	.027	1.000	.784	6.42	1.008
-.164	.026	.999	.767	6.44	1.007
.080	.020	1.000	.576	6.50	1.009
.336	.020	1.000	.537	6.75	1.013
.520	.020	1.000	.536	6.75	1.013
.786	.020	1.000	.541	6.66	1.011
1.040	.019	.998	.543	6.54	1.008
1.322	.019	.991	.548	6.41	1.003
1.498	.018	.989	.551	6.33	1.000
1.724	.018	.989	.557	6.21	.998
1.844	.018	.990	.564	6.15	.998
1.928	.018	.991	.570	6.12	.998
2.000	.018	.993	.575	6.11	.998
2.186	.018	.997	.589	6.13	1.001
2.292	.019	.998	.602	6.16	1.002
2.454	.020	.999	.623	6.21	1.004
2.598	.021	.999	.648	6.26	1.004
2.836	.023	1.000	.688	6.40	1.007
3.062	.026	.999	.727	6.49	1.008
3.248	.027	1.000	.756	6.52	1.009
3.488	.028	1.000	.787	6.50	1.009
3.650	.028	1.000	.809	6.46	1.008
3.962	.027	1.000	.838	6.20	1.004
4.154	.028	1.000	.863	6.18	1.003
4.334	.028	1.000	.890	6.16	1.003
4.560	.029	1.000	.927	6.15	1.003
4.784	.030	1.000	.964	6.12	1.002
5.052	.031	1.000	1.008	6.09	1.002
5.326	.032	1.000	1.059	6.04	1.001
5.592	.033	1.000	1.108	5.99	1.000
5.864	.034	1.000	1.168	5.92	.998
6.094	.035	1.000	1.219	5.86	.997
6.390	.036	1.000	1.290	5.81	.996
6.526	.037	1.000	1.322	5.78	.995
6.726	.038	1.000	1.371	5.73	.994
6.916	.038	1.000	1.422	5.68	.993
7.112	.039	1.000	1.472	5.63	.992
7.270	.039	1.000	1.517	5.58	.990
7.420	.040	1.000	1.555	5.55	.990
7.668	.041	1.000	1.540	5.65	.992

TABLE III.- Continued

(j) $x/h = 43.3$ – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
7.944	.042	1.000	1.590	5.64	.992
8.192	.043	1.000	1.638	5.62	.991
8.326	.043	1.000	1.667	5.61	.991

TABLE III.- Continued

(k) x/h = 47.0

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.112	.027	.999	.827	6.26	1.004
-1.914	.027	.999	.819	6.27	1.005
-1.448	.027	1.000	.807	6.31	1.006
-1.152	.027	1.000	.801	6.33	1.006
-.770	.027	1.000	.799	6.33	1.006
-.560	.027	1.000	.799	6.32	1.006
-.270	.027	1.000	.795	6.33	1.006
-.030	.026	1.000	..39	6.32	1.006
.150	.026	1.000	.781	6.31	1.006
.362	.025	1.000	.772	6.25	1.005
.480	.024	1.000	.736	6.25	1.005
.654	.018	1.000	.503	6.63	1.011
.880	.018	1.000	.497	6.59	1.010
1.046	.018	.998	.496	6.57	1.009
1.208	.017	.995	.496	6.48	1.006
1.368	.017	.991	.497	6.39	1.003
1.478	.017	.990	.502	6.33	1.001
1.562	.017	.989	.505	6.29	1.000
1.672	.017	.989	.509	6.25	.999
1.818	.017	.990	.517	6.23	.999
1.938	.017	.992	.524	6.23	1.000
2.066	.018	.994	.536	6.25	1.002
2.220	.018	.998	.549	6.31	1.005
2.366	.019	.999	.568	6.37	1.006
2.522	.020	1.000	.590	6.41	1.007
2.666	.022	.999	.613	6.51	1.009
2.790	.023	.999	.629	6.57	1.009
2.930	.024	.999	.647	6.62	1.010
3.076	.024	.999	.664	6.66	1.011
3.222	.025	.999	.681	6.67	1.011
3.372	.026	1.000	.695	6.68	1.012
3.516	.026	1.000	.710	6.66	1.011
3.678	.026	1.000	.724	6.60	1.011
3.830	.025	.999	.731	6.45	1.008
3.998	.025	1.000	.750	6.38	1.007
4.172	.026	1.000	.769	6.38	1.007
4.300	.027	1.000	.785	6.37	1.006
4.466	.027	1.000	.805	6.35	1.006
4.610	.027	1.000	.826	6.32	1.006
4.760	.028	.999	.847	6.30	1.005
4.900	.028	.999	.868	6.28	1.005
5.044	.029	1.000	.889	6.26	1.005
5.238	.030	1.000	.926	6.21	1.004
5.358	.030	1.000	.942	6.21	1.004
5.536	.031	1.000	.971	6.18	1.003

TABLE III.- Continued

(k) $x/h = 47.0$ – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
5.720	.031	1.000	1.001	6.14	1.003
5.906	.032	1.000	1.036	6.09	1.002
6.146	.033	1.000	1.082	6.03	1.000
6.414	.034	1.000	1.133	5.96	.999
6.666	.034	1.000	1.187	5.89	.998
6.890	.035	1.000	1.242	5.84	.996
7.172	.036	1.000	1.311	5.76	.995
7.630	.038	1.000	1.420	5.65	.992
8.038	.039	1.000	1.511	5.57	.990
8.252	.040	1.000	1.473	5.72	.994
8.504	.041	1.000	1.523	5.68	.993

TABLE III.- Continued

(l) x/h = 55.3

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.074	.026	.999	.764	6.33	1.006
-1.754	.025	1.000	.760	6.33	1.006
-1.560	.025	1.000	.759	6.33	1.006
-1.332	.025	1.000	.759	6.34	1.006
-1.070	.026	.999	.761	6.37	1.006
-.838	.026	1.000	.763	6.41	1.007
-.632	.026	1.000	.763	6.42	1.008
-.434	.026	1.000	.759	6.41	1.008
-.252	.026	1.000	.756	6.38	1.007
-.068	.025	1.000	.753	6.33	1.006
.156	.024	1.000	.746	6.25	1.005
.360	.023	1.000	.738	6.16	1.003
.532	.022	.997	.728	6.07	1.000
.742	.021	.992	.718	5.99	.996
.940	.020	.990	.710	5.91	.993
1.182	.020	.992	.704	5.81	.992
1.420	.020	.996	.697	5.81	.994
1.570	.020	.999	.698	5.85	.996
1.746	.017	.999	.470	6.49	1.009
1.914	.017	1.000	.485	6.61	1.010
2.000	.018	.999	.493	6.62	1.011
2.116	.019	.999	.505	6.67	1.011
2.300	.020	.998	.524	6.79	1.013
2.432	.021	.998	.537	6.84	1.013
2.602	.022	.999	.551	6.89	1.014
2.758	.022	.999	.566	6.90	1.014
3.022	.023	.999	.586	6.89	1.014
3.168	.023	.999	.597	6.87	1.014
3.312	.023	.999	.601	6.83	1.013
3.412	.023	.999	.604	6.76	1.013
3.530	.023	.999	.608	6.68	1.011
3.580	.023	.999	.613	6.65	1.011
3.742	.023	.999	.621	6.64	1.011
3.960	.023	.999	.640	6.62	1.010
4.206	.024	.999	.661	6.61	1.010
4.476	.025	.999	.686	6.61	1.010
4.700	.026	.999	.709	6.59	1.010
4.946	.026	.999	.732	6.57	1.010
5.304	.027	1.000	.767	6.54	1.010
5.546	.028	1.000	.792	6.50	1.009
5.806	.028	1.000	.819	6.45	1.008
6.144	.029	1.000	.853	6.37	1.007
6.376	.029	.999	.881	6.33	1.006
6.536	.030	.999	.900	6.30	1.005
6.712	.030	.999	.923	6.27	1.005

TABLE III.- Continued

(l) x/h = 55.3 — Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
6.924	.031	1.000	.951	6.23	1.004
7.102	.031	1.000	.978	6.19	1.004
7.386	.032	1.000	1.012	6.16	1.003
7.602	.032	1.000	1.038	6.11	1.0C2
7.968	.033	1.000	1.092	6.00	1.000

TABLE III.- Continued

(m) x/h = 59.0

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.312	.027	.999	.794	6.33	1.005
-2.088	.026	.999	.788	6.34	1.006
-1.814	.026	.999	.778	6.37	1.006
-1.536	.026	1.000	.776	6.36	1.006
-1.268	.026	1.000	.768	6.39	1.007
-.926	.026	1.000	.754	6.38	1.007
-.660	.025	1.000	.748	6.29	1.005
-.468	.024	1.000	.739	6.22	1.004
-.232	.022	1.000	.726	6.10	1.002
-.114	.022	1.000	.718	6.06	1.001
.036	.021	.998	.711	6.00	.999
.236	.020	.993	.704	5.89	.994
.360	.020	.992	.702	5.84	.992
.466	.020	.991	.700	5.80	.991
.504	.020	.990	.701	5.80	.991
.632	.020	.992	.700	5.78	.991
.752	.020	.993	.701	5.79	.992
.926	.020	.997	.705	5.84	.995
1.068	.021	.999	.711	5.93	.998
1.176	.021	1.000	.720	6.00	1.000
1.290	.022	1.000	.730	6.06	1.001
1.394	.024	1.000	.746	6.18	1.003
1.510	.024	1.000	.754	6.25	1.004
1.682	.020	.999	.520	6.84	1.014
1.856	.021	.998	.531	6.88	1.014
2.034	.021	.998	.539	6.90	1.014
2.248	.022	.998	.551	6.91	1.014
2.492	.022	.999	.561	6.86	1.014
2.770	.021	.998	.569	6.71	1.012
3.044	.022	.998	.588	6.69	1.011
3.314	.023	.998	.605	6.68	1.011
3.536	.023	.998	.624	6.65	1.011
3.768	.024	.999	.641	6.64	1.011
3.986	.024	.999	.661	6.62	1.010
4.298	.025	.999	.689	6.60	1.010
4.480	.025	.999	.705	6.58	1.010
4.726	.026	.999	.727	6.57	1.010
5.030	.027	.999	.755	6.53	1.009
5.366	.027	.999	.789	6.47	1.008
5.546	.028	.999	.809	6.44	1.007
5.800	.028	.999	.834	6.41	1.007
6.102	.029	.999	.862	6.40	1.007
6.402	.030	1.000	.890	6.36	1.006
6.796	.030	1.000	.943	6.23	1.004
6.960	.031	1.000	.981	6.14	1.003

TABLE III.- Concluded

(m) x/h = 59.0 — Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
7.290	.033	1.000	1.038	6.18	1.003
7.202	.032	1.000	1.012	6.12	1.002

TABLE IV.- EXPERIMENTAL DATA FOR 15° SHOCK-GENERATOR DEFLECTION ANGLE

(a)   x/h = 15.0

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.895	.029	1.000	1.280	5.21	.981
-4.759	.029	.999	1.279	5.22	.981
-4.601	.019	1.000	.590	6.29	1.005
-4.425	.020	1.000	.617	6.26	1.005
-4.209	.021	1.000	.655	6.21	1.004
-3.995	.022	1.000	.703	6.13	1.002
-3.787	.023	1.000	.740	6.05	1.001
-3.553	.023	1.000	.767	5.99	1.000
-3.267	.023	1.000	.790	5.92	.998
-3.119	.023	1.000	.796	5.90	.998
-2.965	.023	1.000	.797	5.90	.998
-2.703	.023	1.000	.794	5.91	.998
-2.471	.023	1.000	.784	5.99	1.000
-2.287	.023	1.000	.768	6.04	1.001
-2.031	.023	1.000	.738	6.14	1.003
-1.803	.023	1.000	.702	6.26	1.005
-1.497	.023	.998	.653	6.44	1.007
-1.243	.022	.998	.605	6.62	1.010
-.965	.022	.999	.585	6.66	1.011
-.807	.030	1.000	.981	6.04	1.000
-.643	.029	.999	.938	6.09	1.001
-.343	.028	.998	.975	5.90	.997
-.241	.036	1.000	1.493	5.38	.985
-.165	.038	1.000	1.538	5.44	.987
-.107	.039	1.000	1.562	5.45	.987
-.017	.040	1.000	1.596	5.47	.988
.085	.041	1.000	1.627	5.48	.988
.171	.042	1.000	1.643	5.51	.989
.295	.043	1.000	1.624	5.63	.992
.397	.043	1.000	1.596	5.72	.994
.507	.043	1.000	1.602	5.67	.993
.595	.042	1.000	1.628	5.58	.990
.663	.042	1.000	1.644	5.52	.989
.743	.041	1.000	1.674	5.42	.986
.841	.039	1.000	1.708	5.27	.982
.925	.038	.996	1.728	5.12	.976
1.017	.036	.990	1.751	4.97	.968
1.123	.034	.988	1.783	4.82	.962
1.221	.034	.989	1.809	4.73	.959
1.317	.034	.991	1.834	4.73	.960
1.447	.036	.994	1.859	4.84	.966
1.531	.038	.998	1.873	4.97	.972
1.627	.042	1.000	1.897	5.17	.979
1.711	.045	.996	1.910	5.33	.982
1.781	.046	.997	1.930	5.34	.983

TABLE IV.- Continued

(a) x/h = 15.0 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
1.871	.044	1.000	1.951	5.19	.980
1.967	.046	1.000	1.996	5.27	.982
2.067	.049	1.000	2.021	5.43	.987
2.161	.052	1.000	2.032	5.57	.990
2.255	.054	.999	2.046	5.66	.992
2.341	.056	.998	2.057	5.73	.993
2.409	.057	1.000	2.063	5.80	.996
2.507	.023	1.000	.728	6.22	1.004
2.651	.024	1.000	.765	6.19	1.003
2.777	.025	1.000	.800	6.16	1.003
2.907	.026	1.000	.835	6.13	1.002
3.079	.027	1.000	.881	6.10	1.002
3.245	.029	1.000	.928	6.08	1.001
3.389	.030	1.000	.979	6.04	1.001
3.521	.031	1.000	1.024	6.00	1.000
3.669	.032	1.000	1.071	5.97	.999
3.835	.033	1.000	1.131	5.93	.998
4.083	.034	1.000	1.199	5.86	.997
4.399	.035	1.000	1.230	5.81	.996

TABLE IV.- Continued

(b)   x/h = 20.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.198	.025	1.000	.930	5.66	.992
-4.170	.024	.998	.903	5.70	.992
-4.032	.016	1.000	.486	6.22	1.004
-3.760	.016	1.000	.487	6.23	1.004
-3.408	.016	1.000	.475	6.31	1.006
-3.106	.016	1.000	.473	6.32	1.006
-2.738	.016	1.000	.470	6.37	1.007
-2.322	.016	1.000	.463	6.49	1.009
-2.086	.016	1.000	.454	6.53	1.009
-1.870	.016	1.000	.444	6.60	1.010
-1.580	.016	.999	.434	6.65	1.011
-1.396	.020	1.000	.909	5.20	.980
-1.198	.021	1.000	.909	5.22	.981
-.992	.027	1.000	1.108	5.38	.985
-.770	.028	1.000	1.122	5.48	.988
-.530	.029	1.000	1.153	5.50	.988
-.308	.029	1.000	1.151	5.55	.990
-.056	.030	1.000	1.215	5.47	.988
.044	.031	1.000	1.247	5.46	.987
.182	.032	1.000	1.292	5.46	.987
.344	.033	1.000	1.342	5.44	.987
.486	.034	1.000	1.383	5.43	.987
.658	.035	1.000	1.434	5.43	.987
.756	.036	1.000	1.467	5.44	.987
.870	.037	1.000	1.500	5.42	.986
.972	.037	1.000	1.525	5.39	.986
1.082	.037	1.000	1.465	5.48	.980
1.166	.036	1.000	1.477	5.40	.986
1.284	.035	1.000	1.484	5.29	.983
1.464	.033	.997	1.506	5.13	.977
1.578	.032	.993	1.528	5.05	.971
1.694	.031	.991	1.547	4.95	.968
1.806	.031	.991	1.562	4.93	.967
1.930	.032	.994	1.581	4.95	.970
2.030	.033	.998	1.596	5.01	.973
2.154	.035	1.000	1.611	5.11	.977
2.250	.037	.999	1.628	5.20	.980
2.450	.038	.996	1.666	5.26	.980
2.638	.040	.999	1.713	5.31	.983
2.740	.043	.999	1.732	5.43	.986
2.828	.044	.999	1.748	5.53	.989
2.910	.046	.999	1.761	5.61	.991
3.010	.048	.999	1.780	5.69	.992
3.088	.049	.999	1.788	5.74	.994
3.194	.050	.999	1.801	5.80	.995

TABLE IV.- Continued

(b) $x/h = 20.1$ – Concluded

y/h	$P_{t,2}/P_o$	T_t/T_o	$P_{st}/P_{st,\infty}$	M	U/U_∞
3.300	.051	.999	1.815	5.85	.996
3.418	.053	.999	1.830	5.91	.997
3.542	.054	.999	1.843	5.97	.999
3.652	.055	.999	1.859	6.01	1.000
3.750	.057	.999	1.878	6.05	1.000
3.862	.058	.997	1.896	6.09	1.000
3.968	.059	1.000	1.914	6.12	1.002
4.082	.029	1.000	1.102	5.64	.992
4.232	.030	1.000	1.109	5.69	.993
4.428	.031	1.000	1.134	5.73	.994
4.598	.032	1.000	1.084	5.96	.999
4.718	.033	1.000	1.106	5.97	.999
4.952	.034	1.000	1.160	5.94	.999
5.122	.035	1.000	1.183	5.92	.998

TABLE IV.- Continued

(c) x/h = 32.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.424	.019	1.000	.618	6.07	1.001
-4.202	.018	1.000	.585	6.11	1.002
-4.054	.018	1.000	.565	6.15	1.003
-3.872	.018	1.000	.543	6.19	1.004
-3.686	.017	1.000	.524	6.22	1.004
-3.492	.017	1.000	.504	6.27	1.005
-3.116	.024	1.000	.998	5.39	.985
-2.986	.024	1.000	.980	5.40	.986
-2.774	.023	1.000	.953	5.43	.987
-2.440	.023	1.000	.951	5.40	.986
-2.100	.023	1.000	.945	5.42	.986
-1.918	.018	1.000	.599	5.92	.998
-1.772	.017	1.000	.604	5.80	.996
-1.584	.018	1.000	.623	5.86	.997
-1.436	.019	1.000	.636	5.91	.998
-1.298	.019	1.000	.654	5.92	.998
-.982	.020	1.000	.698	5.89	.997
-.676	.021	1.000	.748	5.81	.996
-.512	.021	1.000	.776	5.76	.995
-.284	.022	1.000	.817	5.70	.993
-.120	.022	1.000	.844	5.69	.993
.090	.023	1.000	.879	5.65	.992
.300	.024	1.000	.918	5.62	.991
.602	.025	1.000	.974	5.54	.989
.898	.026	1.000	1.029	5.47	.988
1.022	.026	1.000	1.048	5.46	.987
1.170	.026	1.000	1.069	5.43	.987
1.326	.026	1.000	1.081	5.40	.986
1.482	.026	1.000	1.099	5.32	.984
1.620	.025	1.000	1.113	5.24	.981
1.708	.025	.999	1.120	5.19	.980
1.808	.025	.997	1.132	5.12	.976
1.960	.024	.995	1.150	5.03	.973
2.048	.024	.993	1.164	4.96	.970
2.144	.024	.992	1.179	4.91	.967
2.244	.023	.992	1.192	4.87	.966
2.334	.023	.993	1.203	4.85	.966
2.486	.023	.996	1.220	4.82	.966
2.660	.024	.998	1.240	4.82	.967
2.818	.024	1.000	1.254	4.86	.969
2.940	.025	1.000	1.265	4.91	.971
3.058	.026	1.000	1.275	4.96	.973
3.168	.027	.998	1.286	5.01	.973
3.286	.027	.997	1.297	5.03	.974
3.416	.028	.997	1.316	5.06	.974

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TABLE IV.- Continued

(c) x/h = 32.4 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.488	.028	.998	1.326	5.08	.976
3.602	.029	.999	1.340	5.13	.978
3.700	.030	1.000	1.352	5.18	.980
3.788	.031	1.000	1.364	5.22	.981
3.902	.032	1.000	1.374	5.28	.983
4.026	.033	1.000	1.389	5.32	.984
4.120	.033	1.000	1.399	5.36	.985
4.242	.034	1.000	1.418	5.39	.986
4.342	.035	1.000	1.433	5.42	.986
4.458	.036	1.000	1.453	5.46	.987
4.566	.037	1.000	1.467	5.50	.988
4.698	.038	1.000	1.484	5.54	.989
4.798	.039	1.000	1.496	5.56	.990
4.920	.039	1.000	1.511	5.59	.991
5.006	.040	1.000	1.528	5.60	.991
5.116	.041	1.000	1.538	5.64	.992

TABLE IV.- Concluded

(d)   x/h = 55.3

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-2.274	.024	1.000	1.008	5.36	.985
-2.162	.024	1.000	1.007	5.39	.986
-2.010	.024	1.000	1.012	5.38	.985
-1.866	.024	1.000	1.009	5.38	.985
-1.602	.024	1.000	1.010	5.39	.985
-1.320	.024	1.000	1.016	5.37	.985
-1.044	.024	1.000	1.013	5.36	.985
-.710	.024	1.000	1.003	5.38	.985
-.348	.024	1.000	.994	5.42	.986
.028	.024	1.000	.981	5.46	.987
.450	.024	1.000	.969	5.49	.988
.930	.024	1.000	.955	5.47	.988
1.182	.023	1.000	.945	5.42	.986
1.460	.022	1.000	.935	5.30	.983
1.646	.021	1.000	.929	5.22	.981
1.852	.020	.996	.926	5.13	.976
2.062	.015	.995	.578	5.53	.987
2.272	.015	.994	.591	5.46	.984
2.536	.015	.995	.601	5.41	.984
2.718	.015	.996	.609	5.40	.984
2.990	.016	.999	.625	5.39	.985
3.194	.016	1.000	.641	5.39	.986
3.442	.017	1.000	.657	5.44	.987
3.716	.018	1.000	.680	5.48	.988
3.970	.018	.999	.707	5.51	.988
4.276	.019	.999	.737	5.58	.990
4.436	.020	1.000	.755	5.62	.991
4.570	.021	1.000	.769	5.67	.993
4.860	.022	1.000	.804	5.74	.994
5.132	.023	1.000	.833	5.74	.994
5.374	.023	1.000	.865	5.72	.994
5.426	.023	1.000	.861	5.71	.994

TABLE V.- EXPERIMENTAL DATA FOR 20° SHOCK-GENERATOR DEFLECTION ANGLE

(a) x/h = 7.1

y/h	$P_{t,2}/P_o$	T_t/T_o	$P_{st}/P_{st,\infty}$	M	U/U_∞
3.588	.036	1.000	1.271	5.86	.997
3.362	.036	1.000	1.270	5.86	.997
3.088	.036	1.000	1.273	5.82	.996
2.896	.036	1.000	1.272	5.81	.996
2.590	.036	1.000	1.246	5.85	.997
2.384	.035	1.000	1.177	5.99	1.000
2.224	.034	1.000	1.171	5.89	.997
2.180	.033	1.000	1.217	5.73	.994
2.120	.032	1.000	1.088	5.98	.999
2.086	.032	1.000	1.065	6.00	1.000
2.004	.031	1.000	1.013	6.03	1.000
1.908	.029	1.000	.958	6.04	1.001
1.862	.028	1.000	.913	6.11	1.002
1.806	.027	1.000	.859	6.19	1.004
1.748	.027	1.000	.804	6.29	1.005
1.686	.026	1.000	.744	6.42	1.008
1.626	.025	1.000	.690	6.55	1.010
1.566	.024	1.000	.634	6.72	1.012
1.474	.023	1.000	.550	7.03	1.017
1.394	.021	1.000	.476	7.36	1.021
1.320	.021	1.000	.407	7.80	1.026
1.182	.019	1.000	.338	8.18	1.029
1.110	.018	1.000	.314	8.33	1.031
.954	.047	.997	2.800	4.51	.954
.904	.041	.991	2.741	4.23	.939
.828	.040	.981	2.692	4.19	.932
.770	.040	.996	2.674	4.22	.941
.704	.036	.991	2.615	4.08	.931
.622	.033	.988	2.529	3.94	.922
.544	.034	.984	2.465	4.04	.926
.488	.038	.976	2.441	4.31	.936
.452	.042	.973	2.414	4.59	.946
.412	.047	.969	2.368	4.88	.955
.364	.052	.974	2.330	5.21	.968
.348	.054	.977	2.327	5.31	.972
.322	.056	.982	2.312	5.42	.978
.298	.057	.987	2.304	5.48	.981
.254	.057	.994	2.284	5.51	.986
.126	.044	1.000	1.967	5.17	.979
.074	.043	.998	1.810	5.32	.983
.002	.045	.995	1.588	5.85	.994
-.062	.047	.993	1.537	6.09	.998
-.112	.049	.994	1.493	6.29	1.002
-.150	.050	.994	1.434	6.51	1.006
-.186	.048	.994	1.385	6.47	1.006

TABLE V.- Continued

(a) x/h = 7.1 – Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.284	.035	.995	1.319	5.63	.989
-.418	.036	.992	1.173	6.13	.998
-.490	.037	.992	1.183	6.16	.999
-.594	.038	.993	1.202	6.20	1.000
-.692	.039	.993	1.248	6.15	.999
-.836	.040	.993	1.308	6.09	.998
-.958	.041	.994	1.377	6.01	.997
-1.038	.042	.995	1.432	5.95	.996
-1.126	.043	.996	1.497	5.88	.995
-1.196	.043	.996	1.564	5.79	.993
-1.292	.044	.996	1.652	5.69	.991
-1.406	.045	.997	1.778	5.54	.988
-1.586	.046	.998	1.999	5.28	.981
-1.766	.047	.999	2.213	5.06	.975
-2.090	.043	1.000	2.450	4.58	.959
-2.262	.041	1.000	2.374	4.56	.958
-2.406	.039	1.000	2.279	4.57	.958
-2.646	.037	1.000	2.118	4.59	.959
-2.820	.035	1.000	1.981	4.63	.961
-3.122	.032	1.000	1.737	4.74	.965
-3.458	.029	1.000	1.474	4.90	.971
-3.774	.027	1.000	1.233	5.11	.977
-4.072	.024	1.000	1.029	5.32	.984
-4.294	.022	1.000	.891	5.53	.989
-4.482	.021	1.000	.788	5.67	.993
-4.690	.019	1.000	.686	5.81	.996

TABLE V.- Continued

(b) x/h ≈ 12.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
.099	.037	1.000	2.101	4.59	.959
.203	.037	1.000	2.203	4.53	.957
.329	.038	1.000	2.323	4.43	.953
.403	.039	1.000	2.395	4.43	.952
.479	.040	1.000	2.475	4.43	.952
.535	.041	1.000	2.540	4.43	.952
.605	.042	1.000	2.609	4.42	.952
.667	.043	1.000	2.669	4.41	.952
.739	.045	1.000	2.751	4.41	.952
.831	.046	1.000	2.826	4.41	.951
.927	.047	1.000	2.916	4.40	.951
1.037	.048	1.000	3.002	4.39	.951
1.123	.049	1.000	3.062	4.38	.950
1.207	.049	1.000	3.120	4.35	.949
1.323	.047	1.000	3.182	4.22	.943
1.403	.045	.999	3.223	4.08	.935
1.483	.043	.997	3.251	3.95	.927
1.527	.041	.996	3.264	3.88	.922
1.597	.040	.995	3.296	3.78	.916
1.661	.038	.994	3.328	3.70	.911
1.743	.038	.993	3.358	3.65	.906
1.835	.037	.992	3.412	3.59	.902
1.931	.037	.994	3.452	3.55	.900
2.055	.037	.998	3.517	3.55	.902
2.179	.040	.999	3.600	3.64	.909
2.259	.044	1.000	3.672	3.78	.918
2.335	.048	1.000	3.726	3.92	.927
2.411	.053	1.000	3.792	4.08	.936
2.455	.056	1.000	3.818	4.17	.940
2.507	.059	1.000	3.854	4.27	.945
2.557	.061	1.000	3.878	4.35	.949
2.595	.062	1.000	3.888	4.40	.951
2.647	.064	1.000	3.924	4.44	.953
2.675	.066	.999	3.940	4.47	.954
2.735	.068	.999	3.971	4.52	.956
2.767	.069	1.000	3.972	4.55	.958
2.813	.070	1.000	3.997	4.58	.959
2.847	.071	1.000	4.021	4.61	.960
2.897	.072	1.000	4.041	4.63	.961
2.939	.073	1.000	4.059	4.65	.962
2.983	.074	1.000	4.081	4.68	.963
3.037	.075	1.000	4.093	4.71	.964
3.083	.077	1.000	4.006	4.79	.967
3.159	.033	1.000	1.226	5.66	.992
3.267	.034	1.000	1.236	5.73	.994

TABLE V.- Continued

(b) x/h = 12.1 — Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.471	.035	1.000	1.243	5.81	.996
3.685	.035	1.000	1.245	5.84	.996
3.847	.035	1.000	1.246	5.84	.996
4.151	.036	1.000	1.229	5.90	.998
4.333	.036	1.000	1.226	5.92	.998
4.559	.036	1.000	1.230	5.92	.998
4.787	.036	1.000	1.237	5.90	.998
4.979	.036	1.000	1.245	5.89	.998
5.427	.036	1.000	1.257	5.87	.997
5.767	.036	1.000	1.269	5.84	.996

TABLE V.- Continued

(c)   x/h = 15 0

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-1.435	.020	1.000	.740	5.67	.993
-1.319	.020	1.000	.745	5.73	.994
-.825	.020	1.000	.728	5.70	.993
-.485	.019	1.000	.725	5.63	.992
-.201	.019	1.000	.721	5.57	.990
-.071	.029	1.000	1.485	4.87	.970
.033	.030	1.000	1.580	4.78	.967
.153	.031	1.000	1.664	4.78	.966
.283	.033	1.000	1.752	4.74	.965
.417	.034	1.000	1.846	4.69	.963
.529	.034	1.000	1.920	4.66	.962
.639	.035	1.000	1.995	4.63	.961
.831	.037	1.000	2.130	4.61	.960
.917	.038	1.000	2.191	4.60	.959
1.021	.039	1.000	2.272	4.58	.959
1.221	.041	1.000	2.426	4.53	.957
1.315	.042	1.000	2.484	4.53	.957
1.419	.043	1.000	2.551	4.51	.956
1.511	.044	1.000	2.607	4.49	.955
1.605	.044	1.000	2.652	4.44	.953
1.687	.043	1.000	2.697	4.34	.949
1.779	.041	1.000	2.735	4.21	.942
1.853	.039	.999	2.769	4.11	.937
1.939	.038	.997	2.796	4.01	.930
2.027	.036	.994	2.826	3.90	.923
2.121	.035	.994	2.856	3.82	.918
2.213	.034	.993	2.887	3.76	.914
2.285	.034	.991	2.913	3.72	.910
2.377	.034	.992	2.947	3.68	.908
2.467	.034	.994	2.985	3.67	.408
2.555	.034	.996	3.024	3.68	.910
2.657	.036	.998	3.078	3.73	.914
2.757	.039	.998	3.138	3.83	.921
2.837	.042	.999	3.194	3.95	.928
2.917	.045	1.000	3.255	4.08	.936
3.009	.049	1.000	3.325	4.21	.943
3.089	.053	1.000	3.386	4.32	.948
3.181	.056	1.000	3.445	4.43	.953
3.287	.059	1.000	3.499	4.52	.956
3.397	.062	1.000	3.543	4.59	.959
3.493	.064	1.000	3.589	4.63	.961
3.571	.066	1.000	3.631	4.66	.962
3.657	.067	1.000	3.666	4.69	.963
3.757	.069	1.000	3.717	4.73	.964
3.841	.070	1.000	3.751	4.75	.965

TABLE V.- Continued

(c) x/h = 15.0 — Concluded

y/h	$P_{t,2}/P_o$	T_t/T_o	$P_{st}/P_{st,\infty}$	M	U/U_∞
3.925	.072	1.000	3.792	4.77	.966
4.011	.073	1.000	3.829	4.79	.967
4.131	.075	1.000	3.882	4.81	.968
4.229	.076	1.000	3.825	4.89	.970
4.313	.035	1.000	1.400	5.49	.988
4.673	.035	1.000	1.418	5.48	.988
4.757	.036	1.000	1.404	5.51	.989

TABLE V.- Continued

(d) $x/h = 17.4$

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.050	.027	1.000	1.274	5.08	.977
.120	.029	1.000	1.364	5.05	.976
.226	.030	1.000	1.415	5.07	.976
.508	.032	1.000	1.497	5.10	.977
.790	.033	1.000	1.647	4.95	.972
1.028	.035	1.000	1.784	4.85	.969
1.192	.036	1.000	1.875	4.82	.968
1.296	.037	1.000	1.928	4.81	.967
1.400	.038	1.000	1.983	4.79	.967
1.524	.039	1.000	2.055	4.77	.966
1.636	.040	1.000	2.114	4.75	.965
1.744	.040	1.000	2.172	4.73	.965
1.826	.041	1.000	2.229	4.69	.963
1.968	.040	1.000	2.299	4.59	.959
2.102	.038	1.000	2.351	4.43	.953
2.182	.037	1.000	2.378	4.32	.948
2.252	.036	.999	2.405	4.24	.943
2.324	.035	.998	2.429	4.19	.939
2.408	.034	.995	2.460	4.07	.933
2.464	.034	.995	2.479	4.02	.930
2.528	.033	.994	2.495	3.96	.926
2.592	.032	.993	2.515	3.92	.923
2.672	.032	.992	2.540	3.87	.920
2.752	.032	.992	2.567	3.84	.918
2.832	.032	.992	2.589	3.82	.917
2.930	.032	.994	2.625	3.82	.918
3.004	.033	.996	2.652	3.83	.920
3.070	.034	.997	2.684	3.87	.922
3.142	.035	.997	2.718	3.92	.926
3.208	.037	.998	2.750	3.99	.930
3.262	.038	1.000	2.775	4.06	.934
3.358	.042	1.000	2.830	4.18	.941
3.456	.045	1.000	2.894	4.32	.947
3.540	.048	1.000	2.948	4.42	.952
3.606	.050	1.000	2.990	4.50	.956
3.650	.052	1.000	3.016	4.55	.958
3.730	.054	1.000	3.048	4.61	.960
3.780	.055	1.000	3.069	4.65	.962
3.832	.056	1.000	3.099	4.68	.963
3.902	.058	1.000	3.131	4.71	.964
3.958	.059	1.000	3.169	4.73	.965
4.024	.060	1.000	3.203	4.75	.965
4.104	.061	1.000	3.242	4.77	.966
4.170	.063	1.000	3.272	4.79	.967
4.244	.064	1.000	3.320	4.80	.967

TABLE V.- Continued

(d) $x/h = 17.4$ - Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
4.324	.065	1.000	3.351	4.82	.968
4.416	.066	1.000	3.405	4.83	.968
4.504	.067	1.000	3.447	4.84	.969
4.592	.068	1.000	3.488	4.85	.969
4.672	.069	1.000	3.531	4.86	.969
4.780	.071	1.000	3.588	4.86	.969
4.872	.071	1.000	3.635	4.86	.969
4.972	.072	1.000	3.687	4.86	.969
5.124	.074	1.000	3.697	4.90	.971
5.248	.035	1.000			
5.420	.036	1.000			

TABLE V.- Continued

(e) x/h = 20.1

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.100	.026	1.000	1.078	5.39	.985
.076	.027	1.000	1.137	5.32	.984
.322	.028	1.000	1.221	5.26	.982
.480	.029	1.000	1.281	5.20	.980
.606	.029	1.000	1.331	5.15	.979
.734	.030	1.000	1.380	5.11	.977
.904	.031	1.000	1.448	5.05	.976
.996	.031	1.000	1.489	5.01	.974
1.122	.032	1.000	1.542	4.98	.973
1.232	.032	1.000	1.590	4.96	.973
1.330	.033	1.000	1.632	4.94	.972
1.422	.034	1.000	1.683	4.92	.971
1.504	.034	1.000	1.713	4.91	.971
1.586	.035	1.000	1.746	4.90	.971
1.672	.035	1.000	1.784	4.88	.970
1.756	.036	1.000	1.820	4.87	.970
1.850	.036	1.000	1.862	4.84	.969
1.932	.036	1.000	1.924	4.77	.966
2.044	.036	1.000	1.974	4.70	.964
2.166	.035	1.000	2.026	4.59	.959
2.266	.034	1.000	2.063	4.49	.955
2.336	.034	1.000	2.084	4.40	.951
2.446	.033	.998	2.115	4.29	.945
2.550	.031	.997	2.143	4.19	.940
2.626	.031	.996	2.163	4.13	.936
2.714	.030	.994	2.184	4.06	.932
2.800	.030	.992	2.205	4.00	.928
2.906	.029	.992	2.227	3.95	.925
2.998	.029	.991	2.251	3.91	.922
3.040	.029	.992	2.264	3.90	.922
3.080	.029	.992	2.274	3.89	.921
3.104	.029	.992	2.281	3.88	.921
3.210	.029	.993	2.312	3.89	.922
3.294	.030	.996	2.337	3.91	.925
3.372	.031	.998	2.367	3.95	.928
3.454	.032	.998	2.402	4.00	.931
3.502	.033	.999	2.424	4.04	.933
3.546	.034	1.000	2.439	4.09	.936
3.592	.035	.999	2.458	4.13	.938
3.636	.036	1.000	2.482	4.19	.941
3.710	.039	1.000	2.517	4.28	.946
3.770	.040	1.000	2.548	4.35	.949
3.824	.042	1.000	2.578	4.41	.952
3.874	.043	1.000	2.601	4.46	.954
3.934	.045	1.000	2.637	4.52	.956

TABLE V.- Continued

(e) x/h = 20.1 — Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
3.994	.046	1.000	2.667	4.58	.959
4.068	.048	1.000	2.696	4.63	.961
4.142	.049	1.000	2.728	4.68	.963
4.204	.051	1.000	2.750	4.71	.964
4.282	.052	1.000	2.785	4.74	.965
4.350	.053	1.000	2.817	4.76	.966
4.490	.055	1.000	2.879	4.79	.967
4.574	.056	1.000	2.913	4.81	.968
4.670	.057	1.000	2.956	4.82	.968
4.764	.058	1.000	3.004	4.82	.968

TABLE V.- Continued

(f) x/h = 22.4

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.180	.024	1.000	.924	5.62	.991
-.038	.025	1.000	.964	5.56	.990
.200	.026	1.000	1.030	5.48	.988
.502	.027	1.000	1.119	5.35	.985
.874	.028	1.000	1.237	5.20	.980
1.162	.029	1.000	1.342	5.08	.977
1.386	.030	1.000	1.439	5.00	.974
1.610	.031	1.000	1.508	4.99	.974
1.776	.032	1.000	1.571	4.95	.972
1.980	.033	1.000	1.644	4.89	.971
2.112	.033	1.000	1.705	4.82	.968
2.276	.032	1.000	1.771	4.70	.964
2.400	.032	1.000	1.819	4.59	.959
2.504	.031	1.000	1.853	4.48	.955
2.614	.030	.999	1.881	4.38	.950
2.734	.029	.996	1.909	4.28	.944
2.836	.028	.994	1.932	4.19	.939
2.938	.028	.992	1.958	4.12	.934
3.050	.027	.992	1.984	4.06	.931
3.150	.027	.992	2.007	4.01	.928
3.270	.027	.992	2.033	3.97	.926
3.324	.027	.993	2.046	3.96	.926
3.390	.027	.993	2.066	3.95	.925
3.534	.028	.996	2.104	3.97	.928
3.606	.028	.999	2.126	3.99	.930
3.658	.029	.999	2.145	4.02	.932
3.742	.030	.999	2.180	4.07	.935
3.830	.032	1.000	2.218	4.14	.939
3.916	.034	1.000	2.255	4.22	.942
3.990	.035	1.000	2.292	4.30	.947
4.052	.037	1.000	2.317	4.36	.950
4.134	.039	1.000	2.365	4.45	.953
4.200	.040	1.000	2.401	4.51	.956
4.292	.042	1.000	2.439	4.59	.959
4.380	.044	1.000	2.474	4.64	.961
4.498	.046	1.000	2.524	4.70	.963
4.578	.047	1.000	2.560	4.73	.965
4.662	.049	1.000	2.598	4.75	.965
4.742	.050	1.000	2.631	4.77	.966
4.822	.050	1.000	2.662	4.78	.966
4.908	.052	1.000	2.692	4.80	.967
5.000	.052	1.000	2.735	4.81	.968
5.104	.054	1.000	2.779	4.82	.968
5.198	.055	1.000	2.820	4.83	.968
5.326	.056	1.000	2.867	4.84	.969

TABLE V.- Continued

(f) x/h = 22.4 - Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
5.534	.058	1.000	2.959	4.84	.969
5.676	.059	1.000	3.012	4.85	.969
5.822	.060	1.000	3.066	4.85	.969
5.980	.061	1.000	3.131	4.86	.969
6.174	.063	1.000	3.200	4.87	.970
6.418	.065	1.000	3.277	4.89	.970
6.662	.067	1.000	3.353	4.91	.971
6.818	.069	1.000	3.387	4.94	.972
6.950	.070	1.000	3.388	4.98	.973
7.082	.035	1.000			
7.202	.035	1.000			

TABLE V.- Continued

(g) x/h = 27.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.196	.020	1.000	.721	5.81	.996
.154	.021	1.000	.786	5.76	.995
.802	.024	1.000	.929	5.55	.990
1.032	.024	1.000	.982	5.46	.987
1.220	.025	1.000	1.028	5.39	.986
1.454	.026	1.000	1.082	5.34	.984
1.778	.027	1.000	1.170	5.28	.983
2.020	.028	1.000	1.236	5.23	.981
2.304	.029	1.000	1.315	5.13	.978
2.398	.029	1.000	1.343	5.09	.977
2.472	.029	1.000	1.361	5.05	.976
2.714	.028	1.000	1.426	4.89	.970
2.946	.027	1.000	1.442	4.77	.966
3.204	.026	.996	1.527	4.52	.955
3.432	.025	.993	1.572	4.35	.945
3.554	.024	.991	1.596	4.28	.942
3.664	.024	.991	1.616	4.23	.939
3.768	.024	.991	1.635	4.20	.938
3.956	.024	.992	1.679	4.17	.936
4.122	.025	.996	1.714	4.20	.940
4.258	.027	.998	1.757	4.25	.943
4.394	.028	.999	1.796	4.33	.948
4.530	.030	.999	1.846	4.45	.953
4.644	.032	1.000	1.887	4.56	.958
4.760	.034	1.000	1.920	4.66	.962
4.856	.036	1.000	1.953	4.73	.965
4.916	.037	1.000	1.968	4.78	.967
4.998	.038	1.000	1.997	4.83	.968
5.074	.040	1.000	2.029	4.85	.969
5.166	.041	1.000	2.058	4.88	.970
5.306	.042	1.000	2.106	4.91	.971
5.486	.044	1.000	2.174	4.92	.971
5.642	.045	1.000	2.223	4.94	.972
5.760	.046	1.000	2.262	4.96	.973
5.876	.047	1.000	2.308	4.97	.973
5.982	.048	1.000	2.348	4.97	.973
6.146	.049	1.000	2.406	4.98	.973
6.322	.051	1.000	2.477	4.97	.973
6.532	.052	1.000	2.554	4.95	.972
6.690	.053	1.000	2.611	4.94	.972
6.840	.054	1.000	2.660	4.94	.972
6.988	.055	1.000	2.710	4.93	.972
7.222	.056	1.000	2.795	4.92	.971
7.444	.058	1.000	2.865	4.91	.971
7.634	.059	1.000	2.943	4.90	.971

TABLE V.- Continued

(g) x/h = 27.4 – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
7.882	.060	1.000	3.019	4.91	.971
8.146	.062	1.000	3.101	4.92	.971
8.286	.063	1.000	3.137	4.92	.972

TABLE V.- Continued

(h) x/h = 32.4

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-4.822	.017	1.000	.663	5.39	.985
-4.638	.016	1.000	.633	5.44	.987
-4.422	.016	1.000	.605	5.49	.988
-4.094	.015	1.000	.566	5.58	.990
-3.768	.015	1.000	.523	5.69	.993
-3.520	.015	1.000	.501	5.74	.994
-3.288	.014	1.000	.481	5.77	.995
-3.052	.014	1.000	.461	5.80	.996
-2.764	.020	1.000	1.057	4.78	.967
-2.496	.020	1.000	1.086	4.71	.964
-2.172	.020	1.000	1.062	4.81	.967
-2.036	.020	1.000	1.030	4.91	.971
-1.888	.016	1.000	.600	5.45	.987
-1.724	.016	1.000	.607	5.50	.988
-1.536	.016	1.000	.616	5.52	.989
-1.332	.017	1.000	.641	5.59	.991
-1.222	.017	1.000	.654	5.58	.990
-1.090	.018	1.000	.670	5.54	.990
-.946	.018	1.000	.689	5.50	.989
-.736	.018	1.000	.720	5.44	.987
-.522	.018	1.000	.753	5.38	.985
-.312	.019	1.000	.787	5.33	.984
.060	.020	1.000	.846	5.26	.982
.336	.020	1.000	.889	5.21	.981
.686	.021	1.000	.945	5.16	.979
.936	.021	1.000	.981	5.14	.978
1.180	.022	1.000	1.011	5.13	.978
1.506	.023	1.000	1.059	5.10	.977
1.806	.024	1.000	1.098	5.10	.977
1.942	.024	1.000	1.116	5.10	.977
2.152	.025	1.000	1.147	5.09	.977
2.276	.025	1.000	1.162	5.08	.976
2.408	.025	1.000	1.179	5.05	.976
2.538	.025	1.000	1.194	5.02	.975
2.750	.025	1.000	1.218	4.95	.972
2.960	.024	1.000	1.245	4.85	.969
3.126	.024	.998	1.271	4.75	.964
3.338	.023	.995	1.300	4.64	.959
3.518	.022	.994	1.329	4.52	.953
3.720	.022	.993	1.341	4.42	.949
3.818	.022	.993	1.347	4.40	.948
3.918	.022	.992	1.353	4.38	.946
4.032	.022	.993	1.359	4.37	.947
4.128	.022	.995	1.365	4.38	.948
4.226	.022	.996	1.373	4.39	.949

TABLE V.- Continued

(h) x/h = 32.4 – Concluded

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
4.322	.023	.998	1.379	4.43	.952
4.404	.023	.999	1.387	4.47	.954
4.510	.024	1.000	1.395	4.56	.958
4.648	.025	1.000	1.394	4.71	.964
4.794	.027	1.000	1.390	4.86	.969
4.926	.029	1.000	1.396	5.00	.974
5.038	.030	1.000	1.406	5.10	.977
5.136	.031	1.000	1.420	5.16	.979
5.230	.032	1.000	1.421	5.23	.981

TABLE V.- Continued

(i) x/h = 38.3

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.366	.017	.998	.502	6.35	1.005
-.052	.017	.998	.520	6.34	1.005
.228	.018	.998	.543	6.29	1.004
.488	.018	.997	.564	6.23	1.003
.780	.019	.998	.590	6.18	1.002
.996	.019	.999	.614	6.13	1.002
1.188	.020	.999	.635	6.12	1.002
1.354	.020	.999	.656	6.10	1.001
1.568	.021	1.000	.683	6.08	1.001
1.760	.021	1.000	.706	6.02	1.000
1.998	.022	1.000	.734	5.97	.999
2.168	.022	1.000	.755	5.92	.998
2.400	.022	1.000	.786	5.85	.997
2.558	.022	1.000	.803	5.77	.995
2.738	.022	1.000	.825	5.65	.992
2.910	.021	1.000	.841	5.53	.989
3.068	.021	1.000	.867	5.40	.986
3.196	.021	.999	.881	5.30	.983
3.336	.020	.997	.901	5.21	.979
3.456	.020	.996	.922	5.12	.976
3.566	.020	.994	.941	5.05	.973
3.724	.020	.992	.967	4.95	.969
3.908	.019	.991	1.001	4.85	.964
3.944	.019	.991	1.018	4.79	.962
4.008	.019	.990	1.034	4.75	.960
4.106	.019	.990	1.050	4.71	.959
4.218	.019	.991	1.070	4.68	.958
4.364	.020	.993	1.091	4.66	.958
4.602	.020	.996	1.121	4.69	.962
4.694	.021	.998	1.130	4.74	.964
4.778	.021	.998	1.140	4.77	.965
4.840	.022	.998	1.148	4.81	.967
4.924	.023	.999	1.157	4.86	.969
5.008	.023	.999	1.170	4.92	.971
5.082	.024	.999	1.182	4.98	.973
5.146	.025	1.000	1.189	5.04	.975
5.204	.026	.999	1.203	5.07	.976
5.310	.027	.999	1.223	5.15	.978
5.470	.029	1.000	1.262	5.23	.981
5.574	.030	1.000	1.290	5.27	.982
5.706	.031	1.000	1.323	5.30	.983
5.832	.032	1.000	1.355	5.32	.984
5.992	.033	1.000	1.399	5.32	.984
6.228	.034	1.000	1.456	5.32	.984
6.536	.036	1.000	1.541	5.30	.983

TABLE V.- Continued

(i) x/h = 38.3 — Concluded

y/h	$p_{t,2}/p_o$	T_t/T_o	$p_{st}/p_{st,\infty}$	M	U/U_∞
6.868	.038	1.000	1.634	5.28	.983
7.196	.040	1.000	1.732	5.25	.982
7.520	.041	1.000	1.820	5.21	.981
7.776	.042	1.000	1.895	5.17	.979
8.026	.043	1.000	1.970	5.13	.978
8.198	.044	1.000	2.023	5.10	.977
8.380	.044	1.000	2.070	5.08	.977
8.508	.045	1.000	2.108	5.07	.976
8.740	.046	1.000	2.169	5.04	.975
8.920	.047	1.000	2.219	5.03	.975
9.084	.047	1.000	2.268	5.01	.974

TABLE V.- Continued

(j) x/h = 47.0

y/h	$p_{t,2}/p_0$	T_t/T_0	$p_{st}/p_{st,\infty}$	M	U/U_∞
-.100	.022	.998	.839	5.66	.991
.154	.022	.999	.832	5.66	.992
.404	.022	.997	.822	5.67	.991
.610	.016	.997	.492	6.24	1.003
.952	.017	.997	.503	6.29	1.004
1.204	.017	.997	.515	6.32	1.004
1.332	.017	.998	.520	6.33	1.005
1.480	.018	.998	.528	6.32	1.005
1.624	.018	.999	.537	6.30	1.005
1.806	.018	1.000	.548	6.28	1.005
1.970	.013	1.000	.558	6.24	1.004
2.146	.018	1.000	.569	6.18	1.003
2.380	.018	1.000	.581	6.09	1.002
2.548	.018	1.000	.590	6.00	1.000
2.706	.018	1.000	.599	5.92	.998
2.938	.018	1.000	.613	5.80	.995
3.066	.017	.999	.622	5.72	.993
3.200	.017	.999	.631	5.64	.991
3.354	.017	.997	.643	5.56	.988
3.574	.017	.995	.659	5.44	.984
3.756	.017	.992	.674	5.34	.980
3.858	.016	.992	.684	5.29	.979
3.914	.016	.992	.690	5.26	.978
4.028	.016	.990	.700	5.21	.976
4.144	.016	.990	.712	5.16	.974
4.206	.016	.989	.719	5.14	.973
4.266	.016	.989	.726	5.12	.972
4.338	.016	.989	.733	5.10	.972
4.402	.016	.989	.740	5.08	.971
4.560	.016	.991	.757	5.05	.971
4.792	.017	.993	.777	5.05	.972
4.960	.017	.996	.792	5.08	.975
5.110	.018	.998	.806	5.13	.977
5.214	.019	.999	.815	5.19	.979
5.328	.019	1.000	.827	5.25	.982
5.452	.020	1.000	.842	5.34	.984
5.602	.021	.999	.866	5.45	.987
5.806	.023	.999	.903	5.58	.990
5.970	.024	.999	.931	5.63	.991
6.202	.026	.999	.977	5.67	.992
6.422	.027	.999	1.015	5.69	.993
6.594	.028	1.000	1.046	5.69	.993
6.778	.029	1.000	1.078	5.69	.993
6.970	.030	1.000	1.110	5.68	.993
7.144	.030	.999	1.144	5.65	.992

TABLE V.- Concluded

(j)   x/h = 47.0 − Concluded

y/h	$P_{t,2}/P_o$	T_t/T_o	$P_{st}/P_{st,\infty}$	M	U/U_∞
7.282	.031	1.000	1.170	5.64	.992
7.456	.032	.999	1.201	5.62	.991
7.668	.033	1.000	1.244	5.60	.991
7.868	.033	1.000	1.285	5.58	.991
8.138	.034	1.000	1.342	5.55	.990
8.338	.035	1.000	1.387	5.51	.989
8.530	.036	1.000	1.431	5.47	.988
8.716	.036	1.000	1.471	5.45	.987
8.830	.037	1.000	1.499	5.42	.986
8.962	.037	1.000	1.507	5.44	.987
9.212	.038	1.000	1.553	5.42	.986
9.370	.038	1.000	1.576	5.41	.986
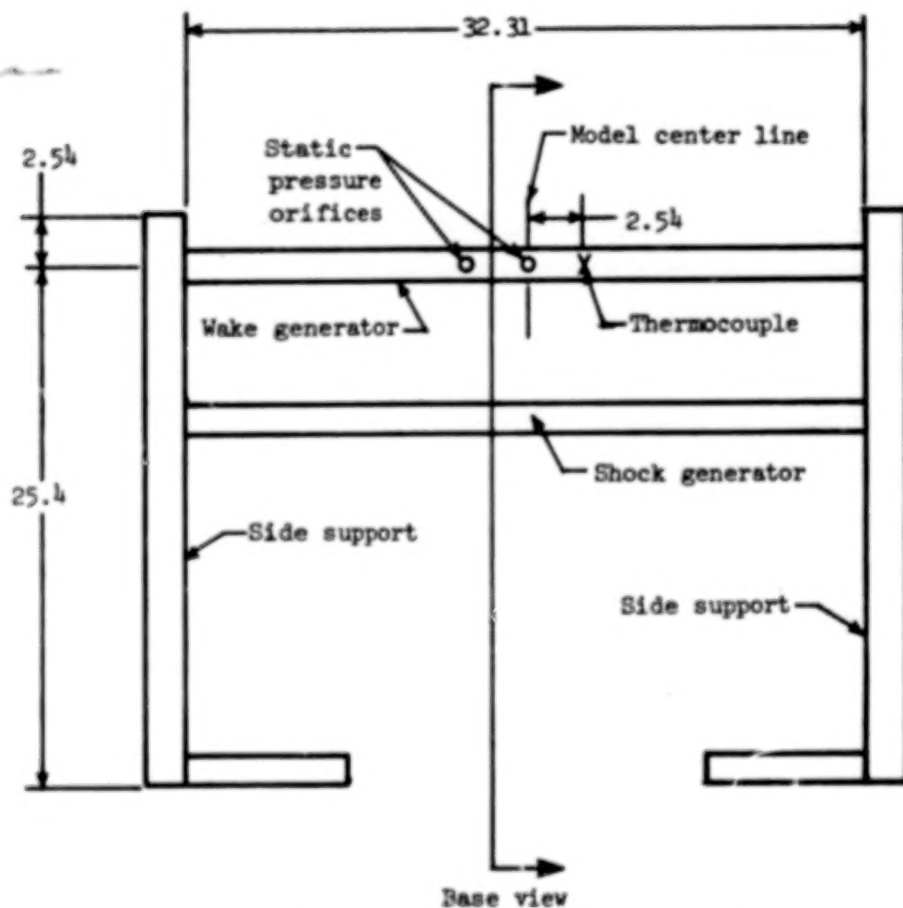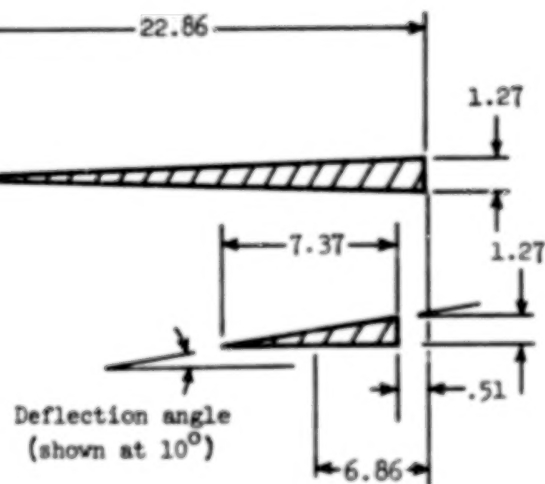
Figure 1.- Two views of wake-shock interaction model. Linear dimensions are given in centimeters.

106
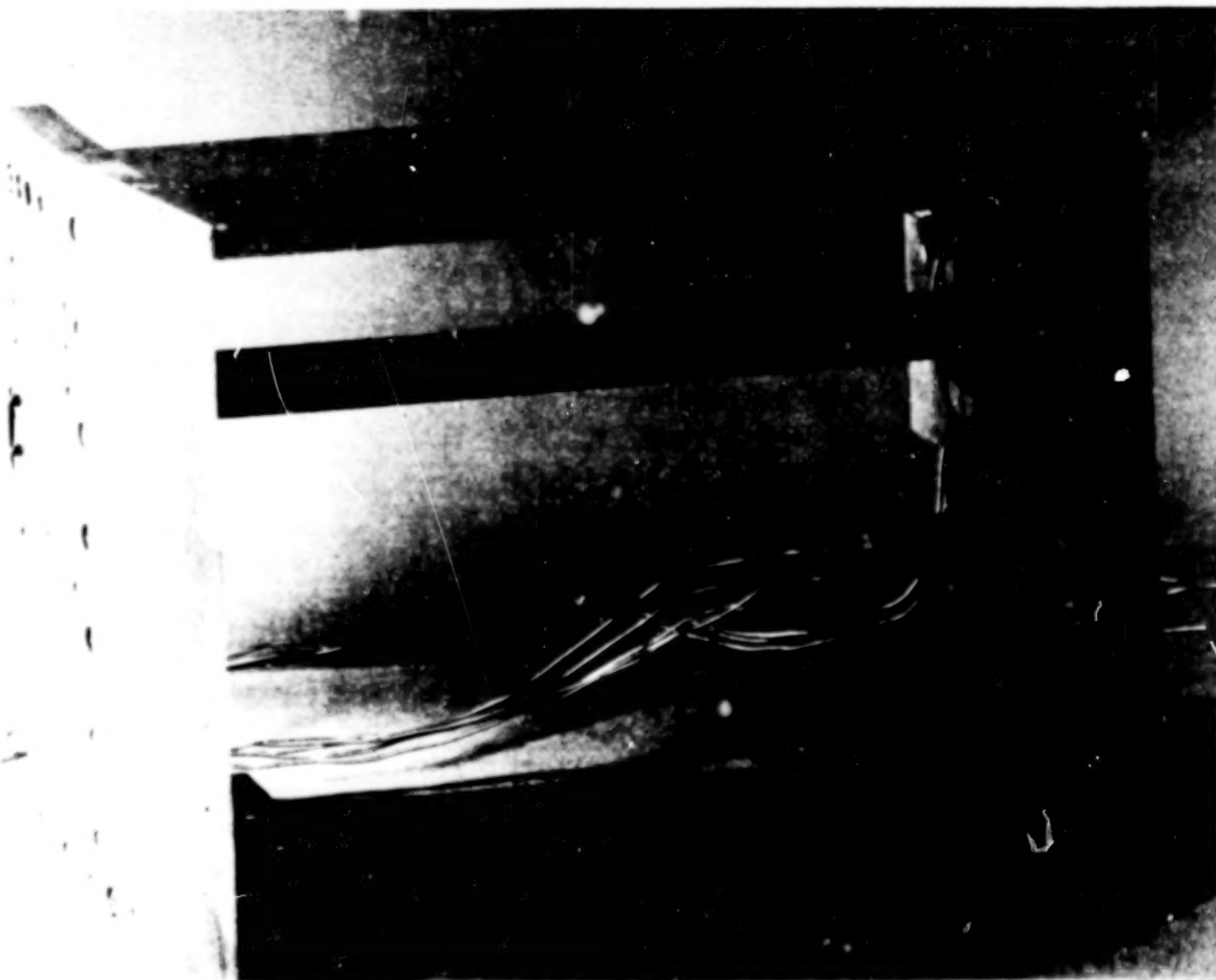
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Figure 2.- Wake-shock interaction model.

Flow

2.79 cm

3.81 cm ——— 3.81 cm

(a) View from top of tunnel.

Pitot pressure   Static pressure   Total temperature

3.81 cm

Sharp leading edges
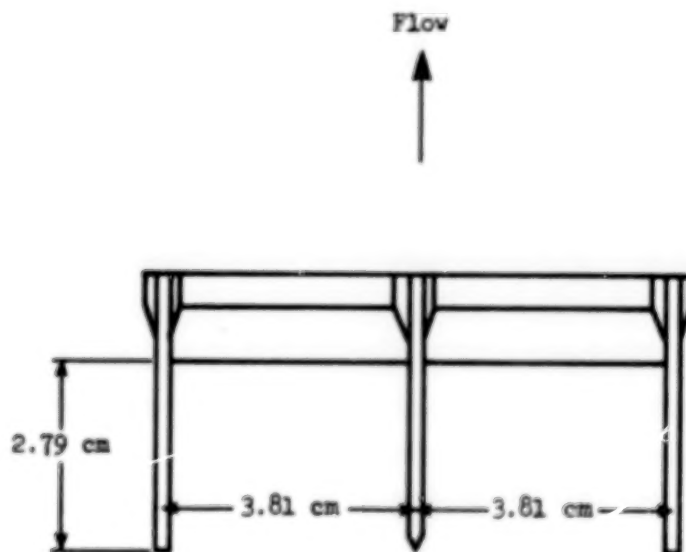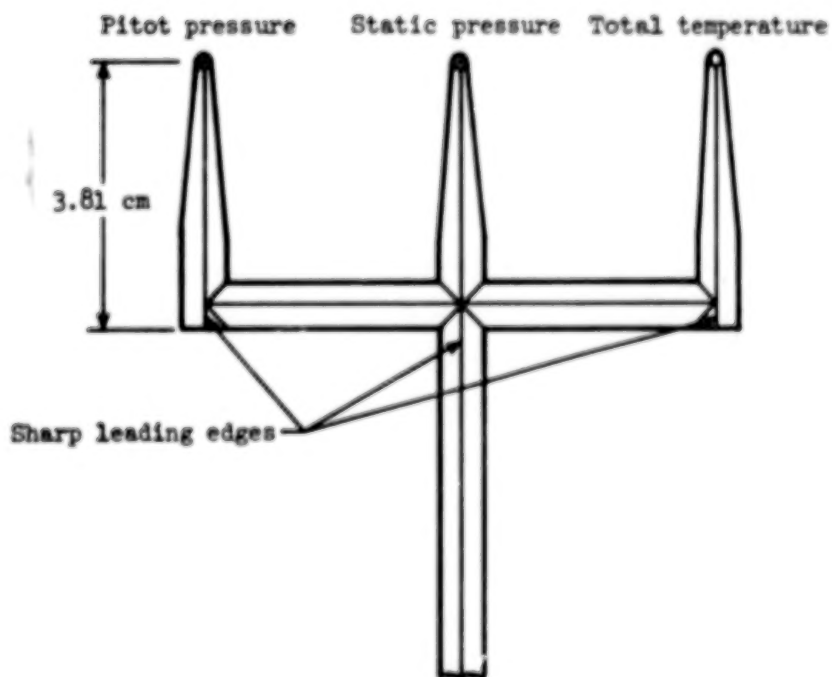
(b) View from upstream.

Figure 3.- Two views of traverse rake.

108
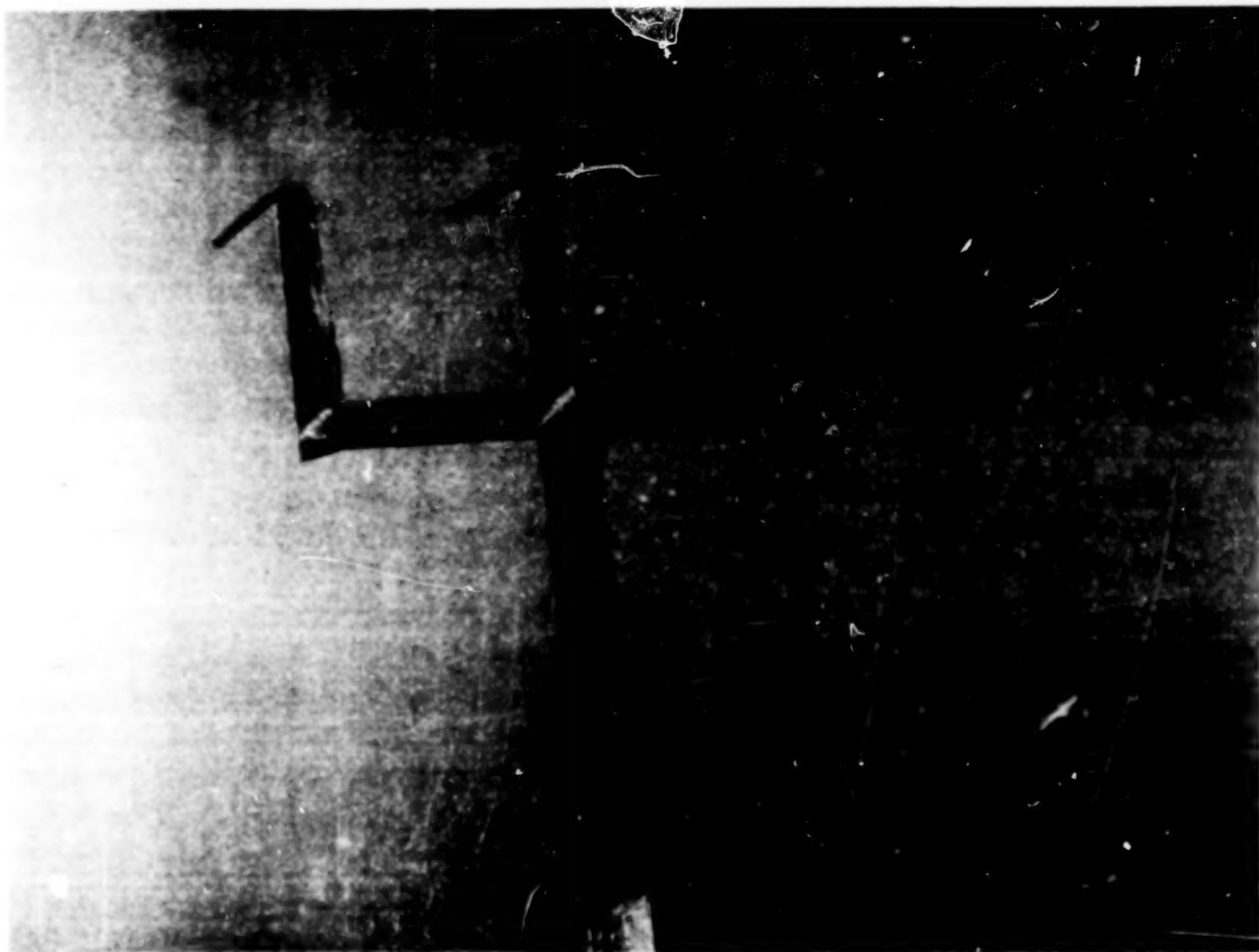
Figure 4.- Traverse rake.

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109
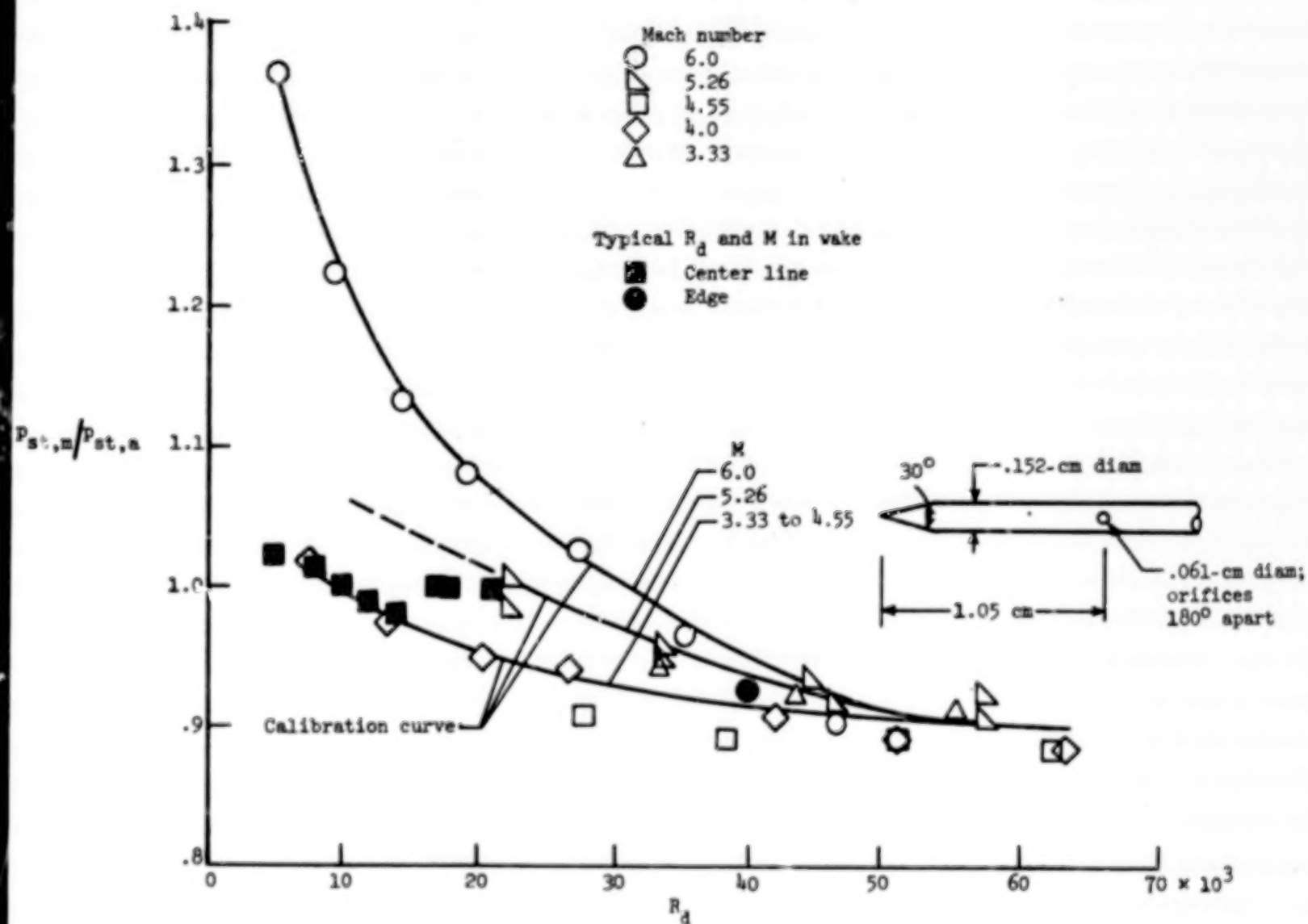
Figure 5.- Static-pressure probe calibration.
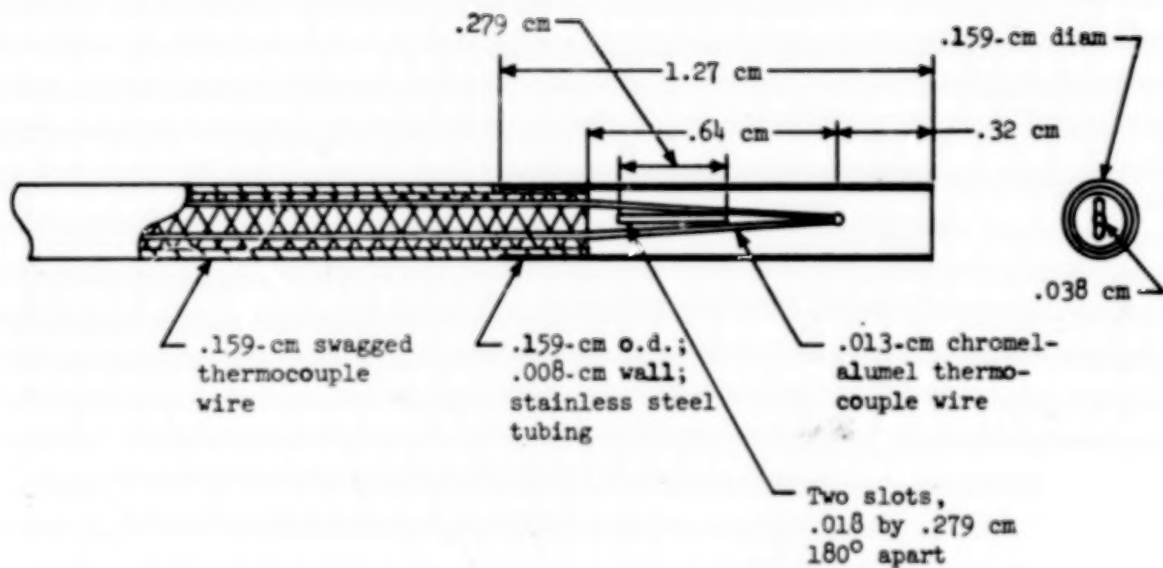
Figure 6.- Total-temperature probe configuration.

111
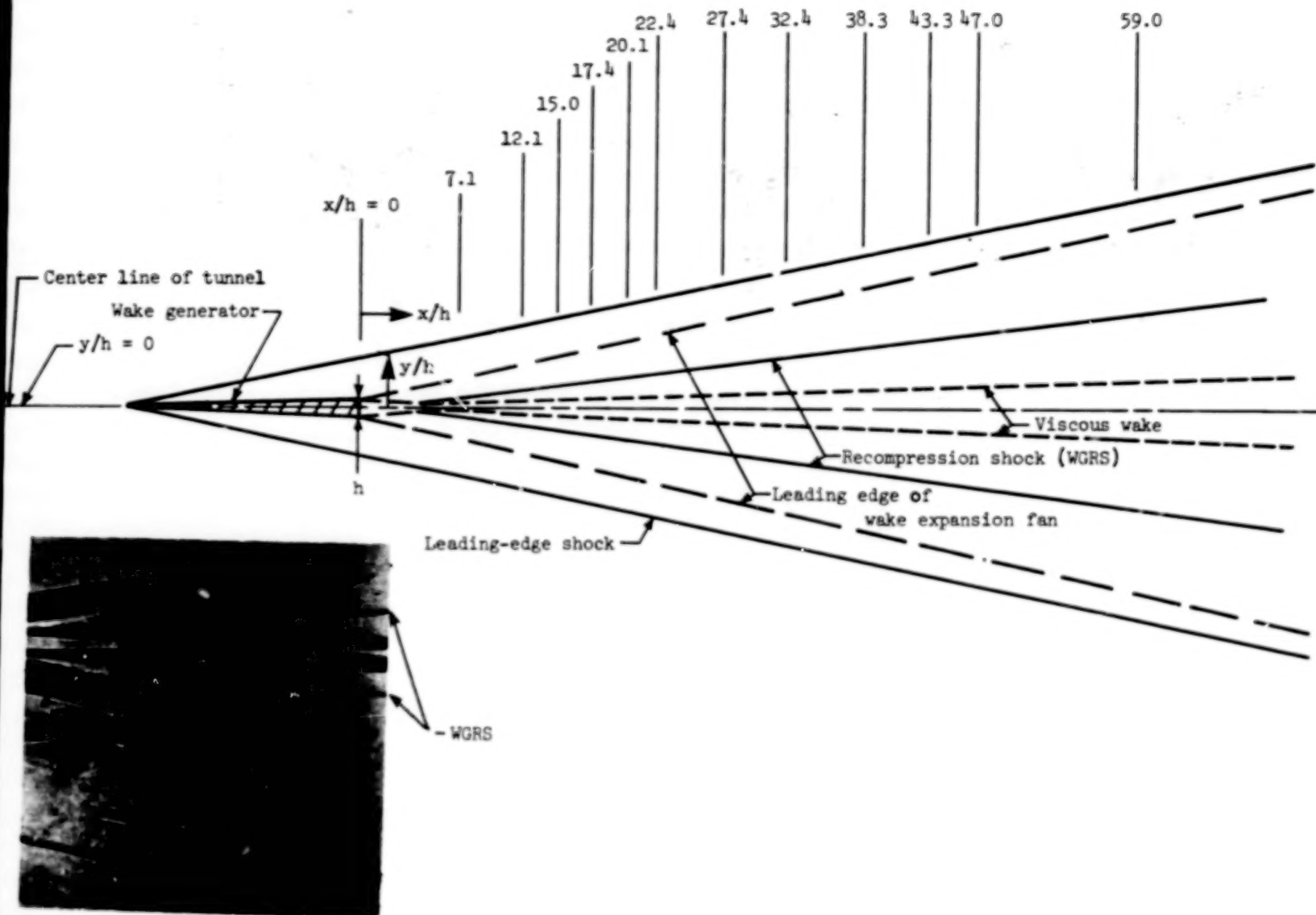
Figure 7.- Schlieren photograph and schematic diagram of two-dimensional turbulent wake.

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112
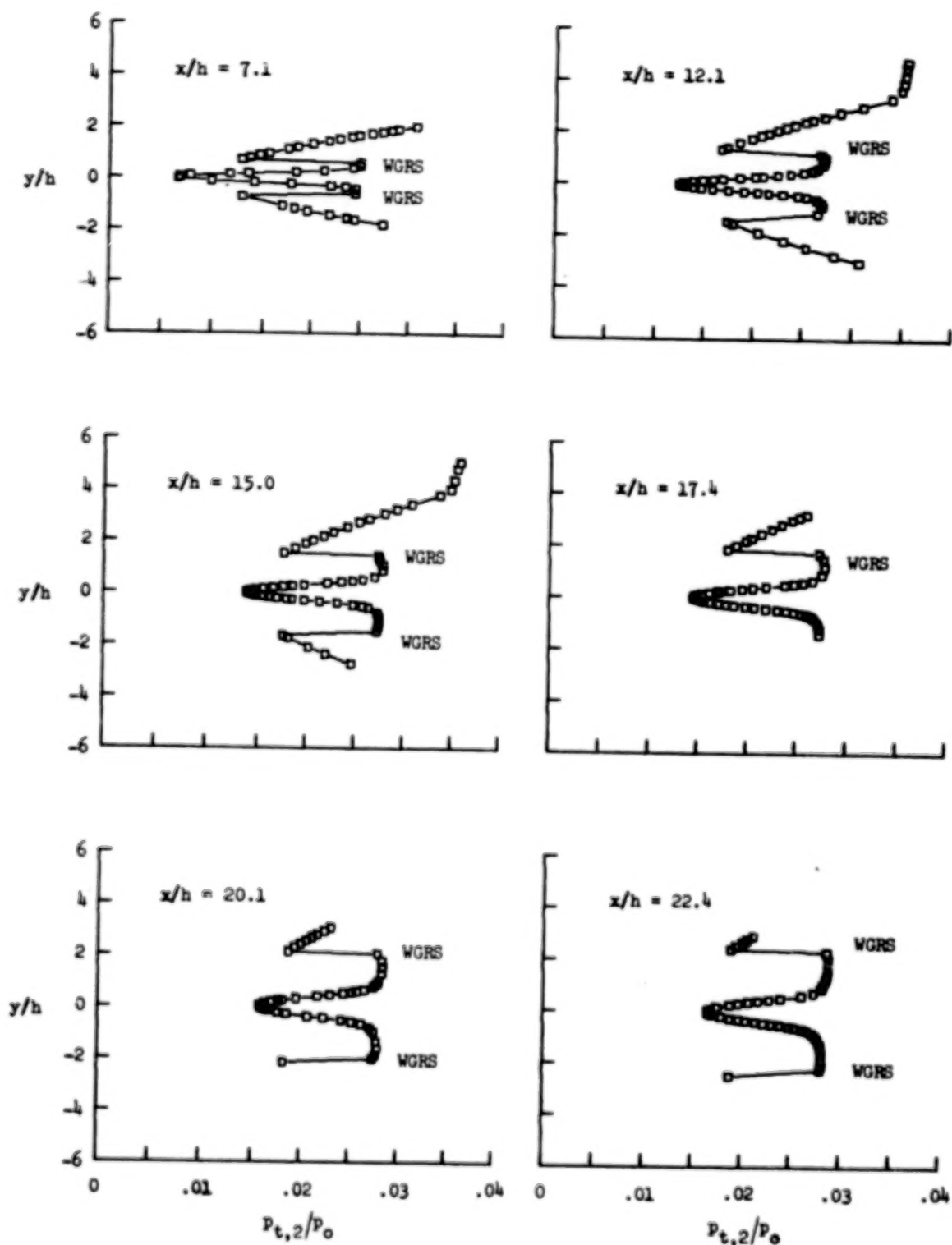
(a) Mean pitot pressure.

Figure 8.- Profiles for two-dimensional turbulent wake.
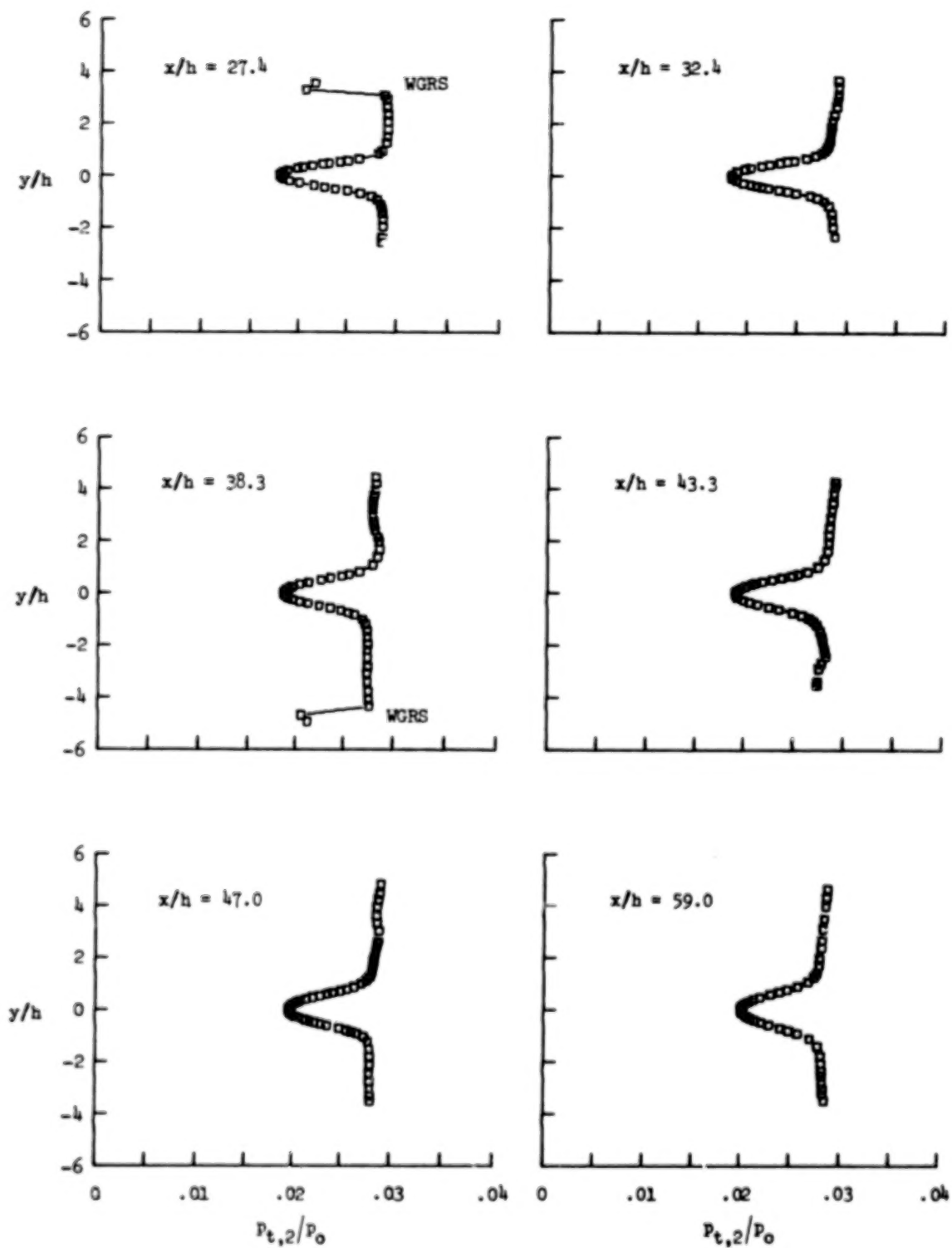
(a) Concluded.

Figure 8.- Continued.
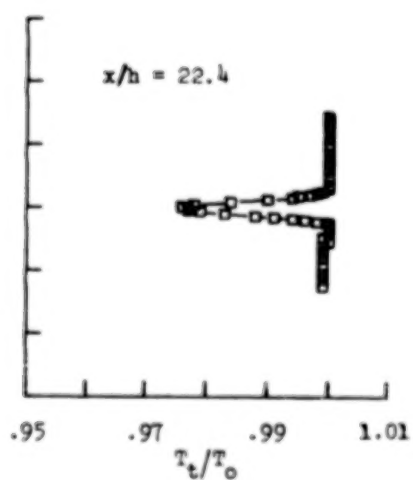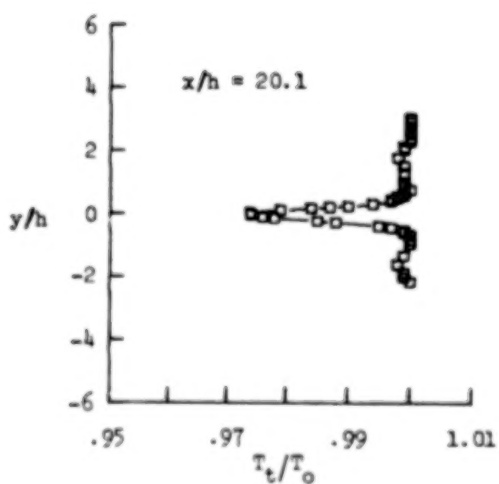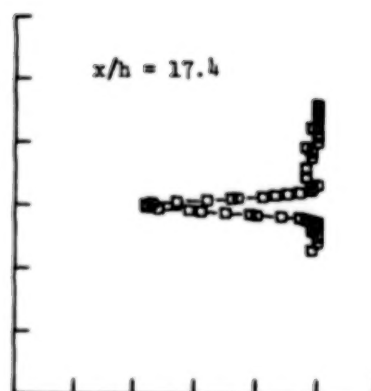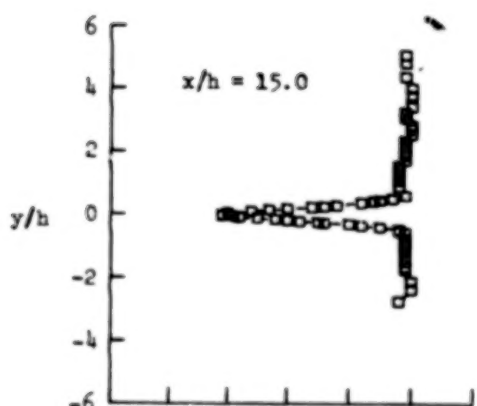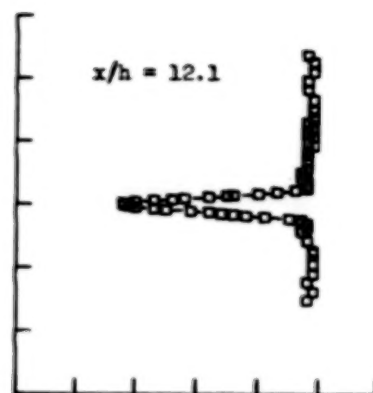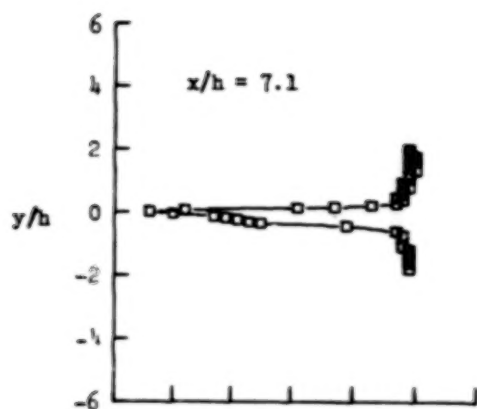
(b) Total temperature.

Figure 8.- Continued.
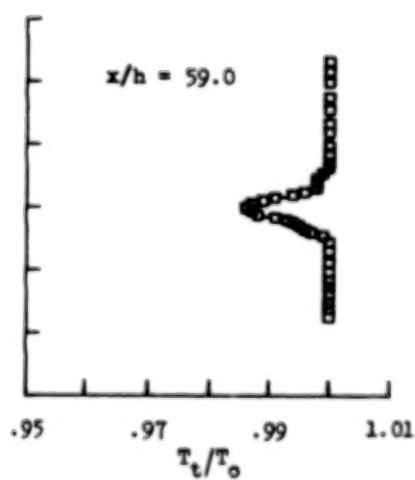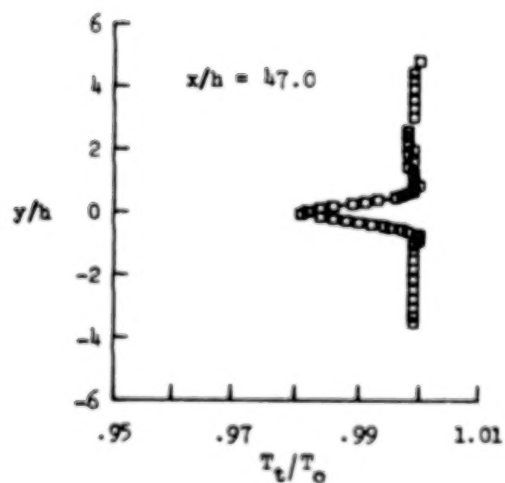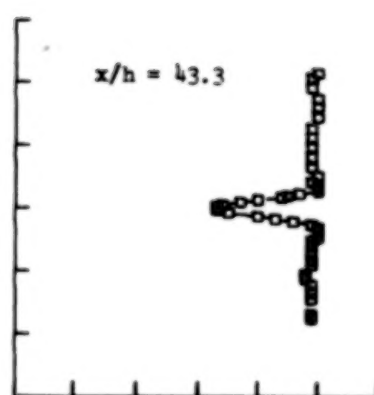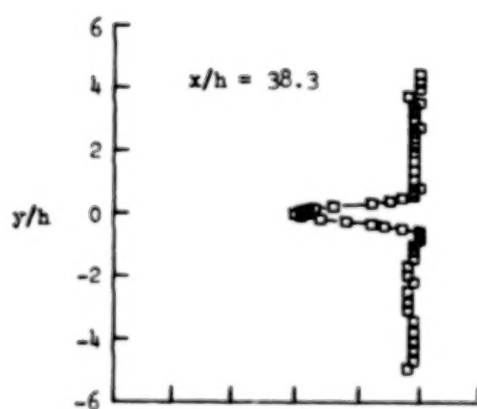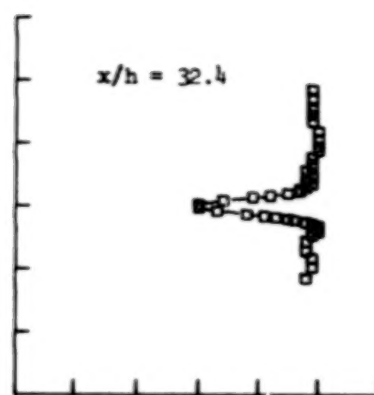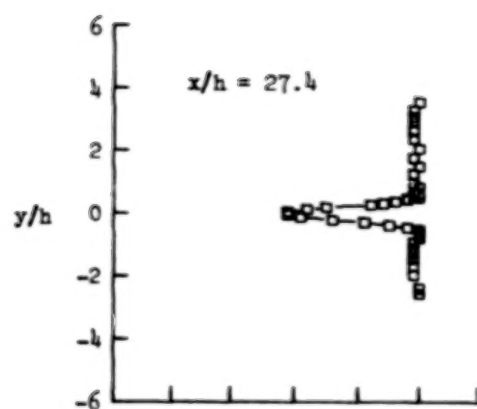
(b) Concluded.
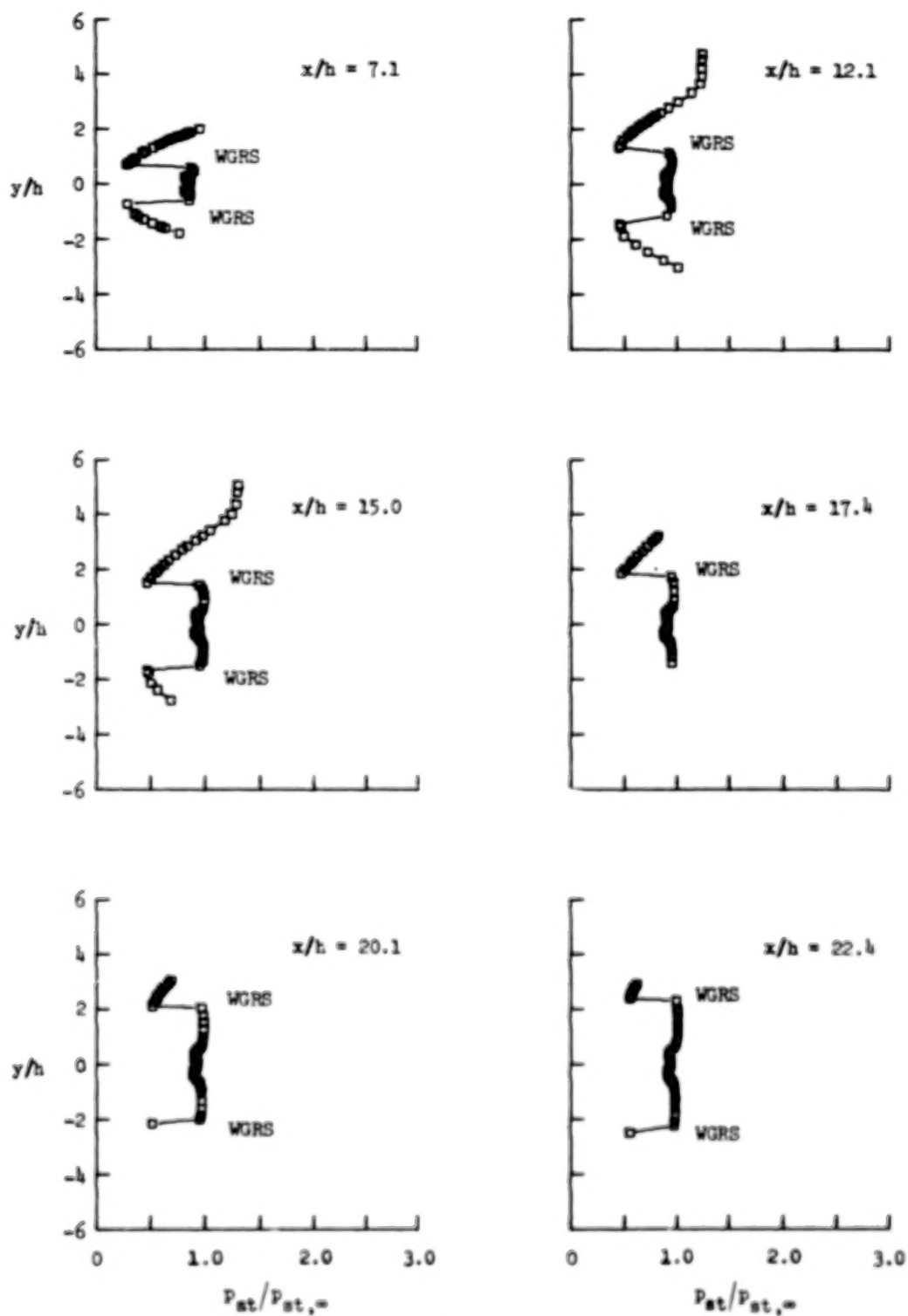
Figure 8.- Continued.

(c) Static pressure.

Figure 8.- Continued.
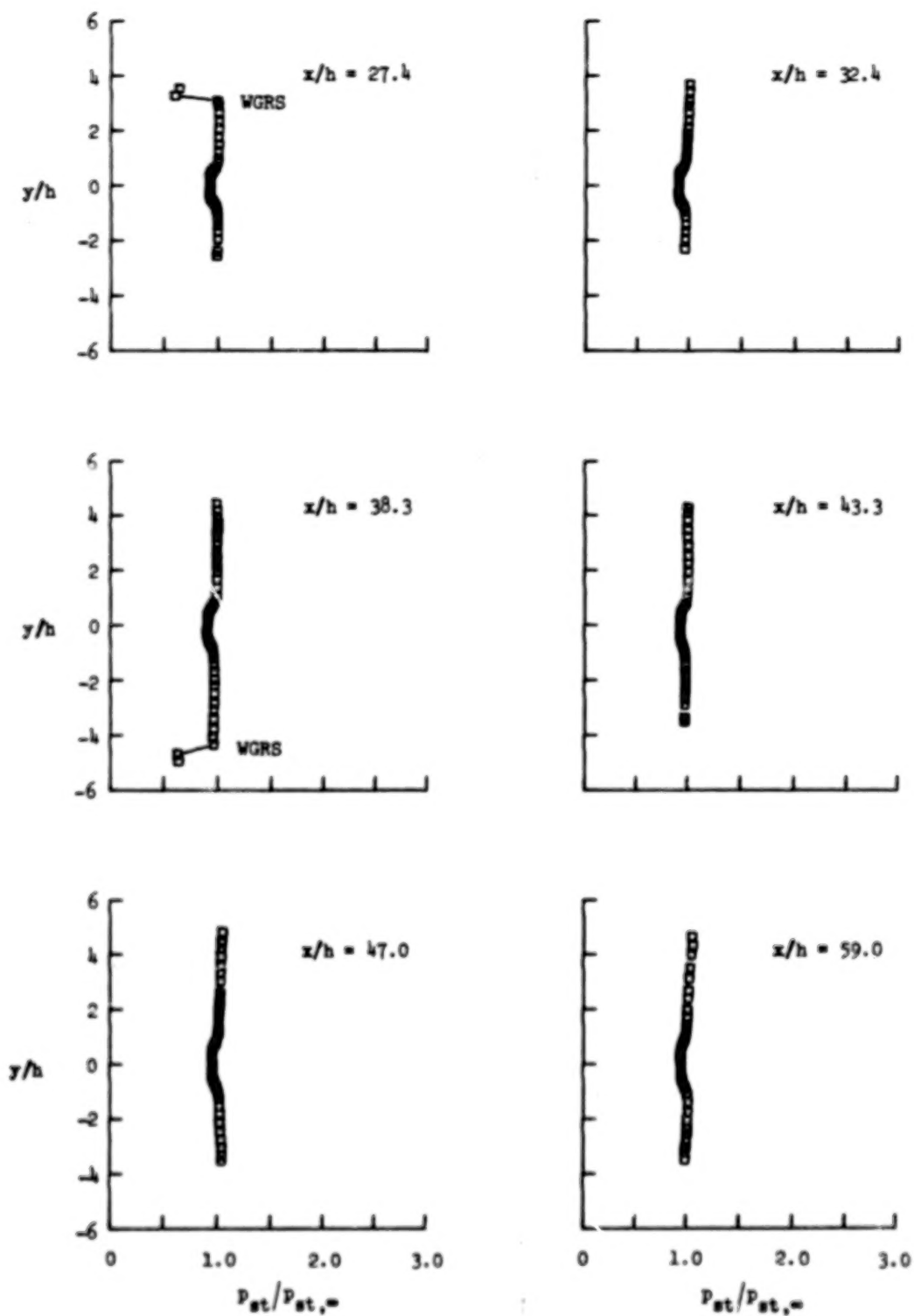
(c) Concluded.

Figure 8.- Continued.
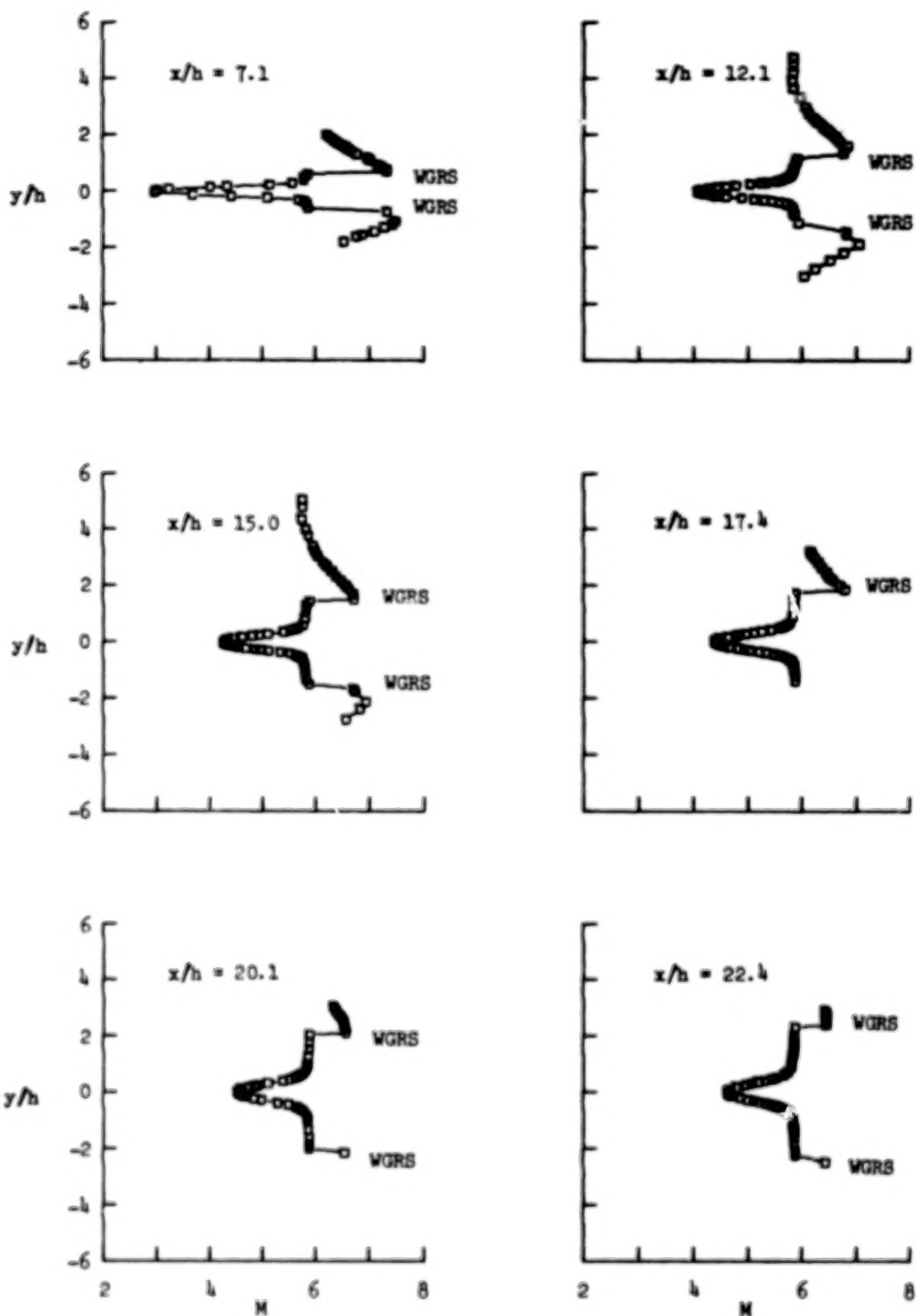
(d) Mach number.

Figure 8.- Continued.
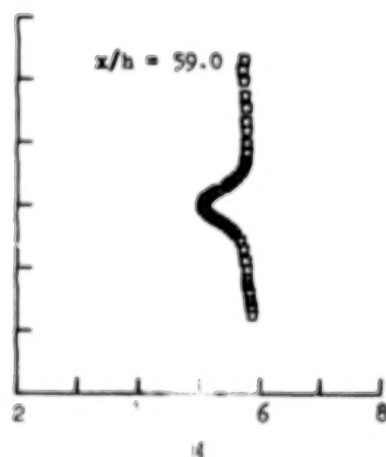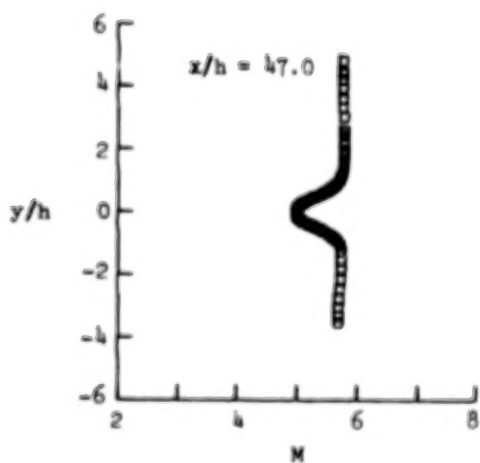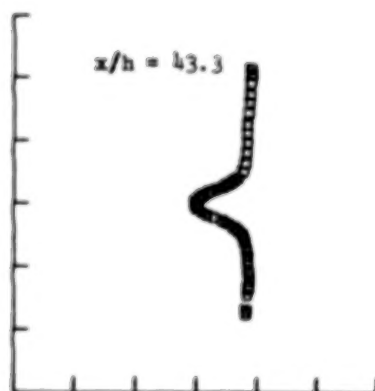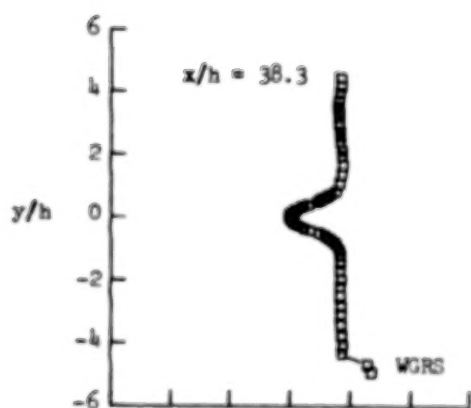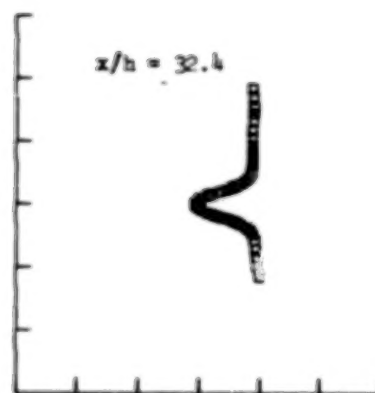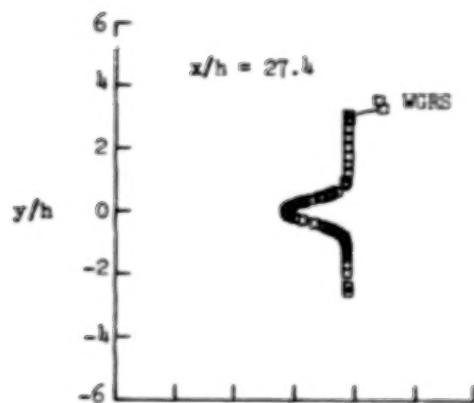
(d) Concluded.
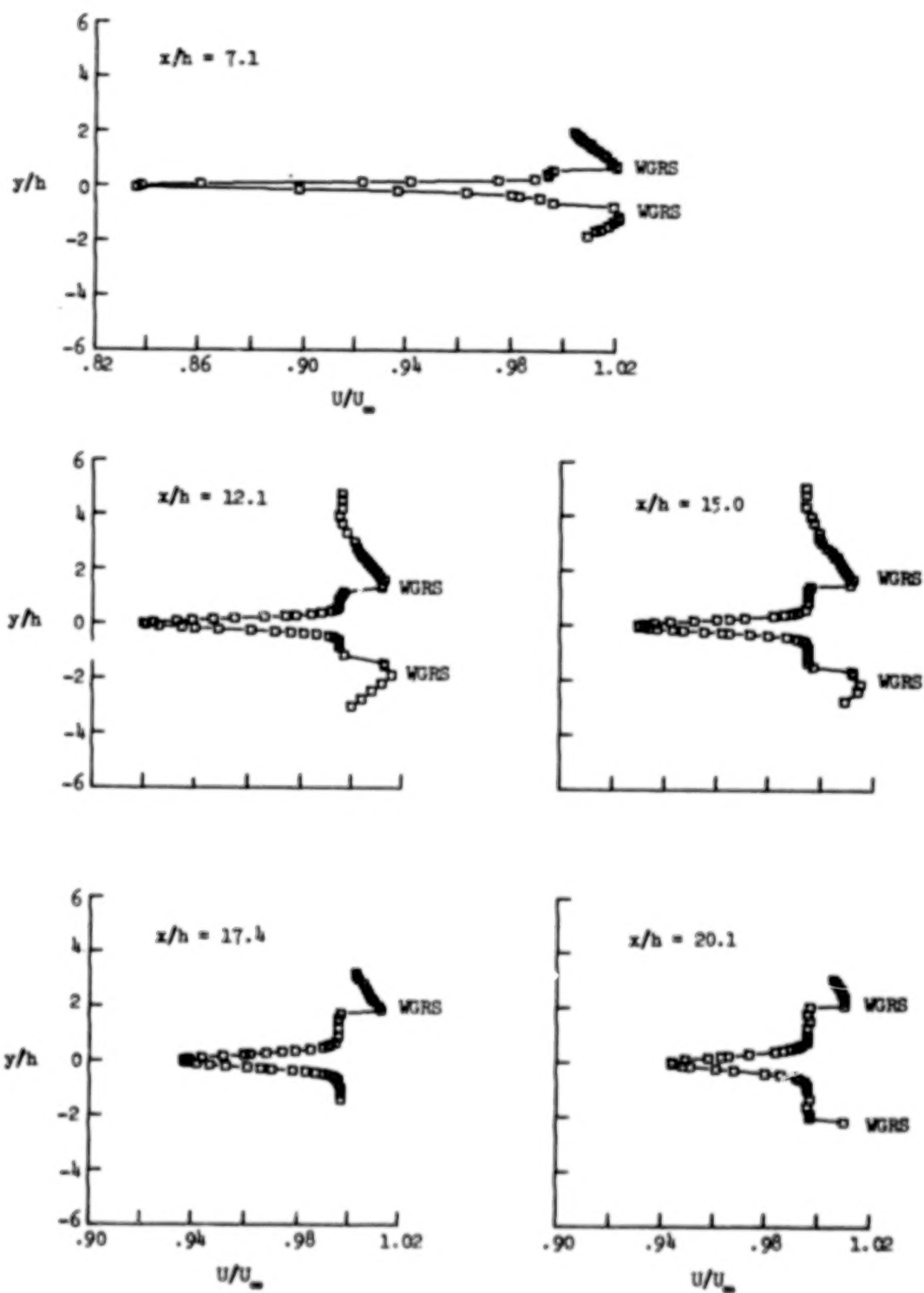
Figure 8.- Continued.

(e) Velocity.

Figure 8.- Continued.
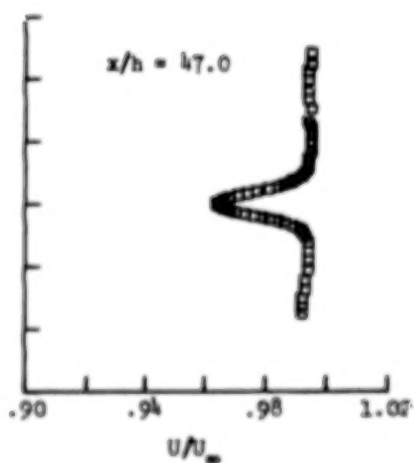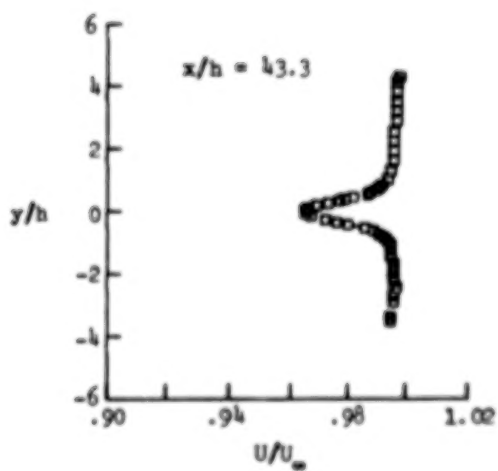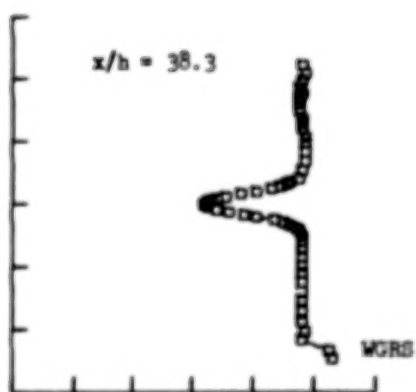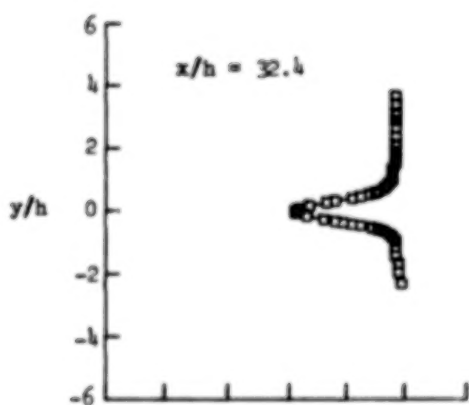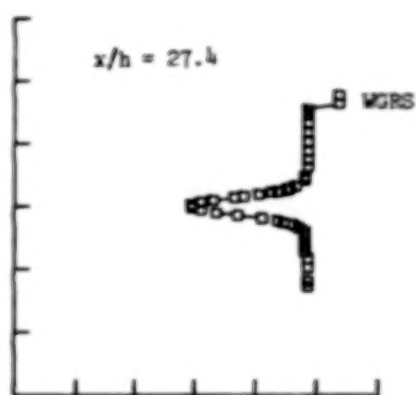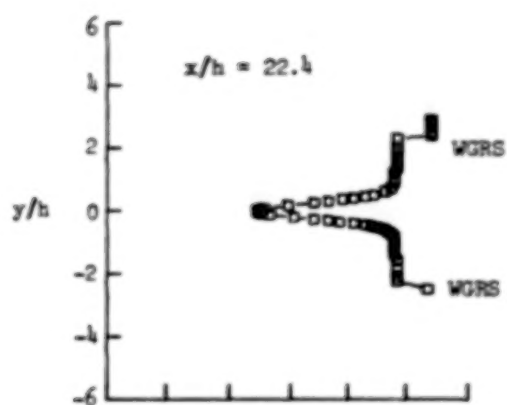
(e) Continued.

Figure 8.- Continued.
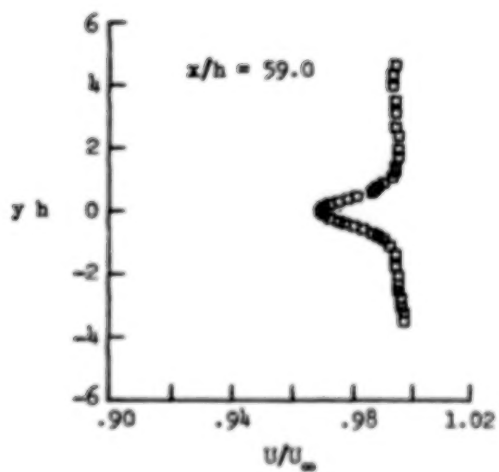
(e) Concluded.

Figure 8.- Concluded.
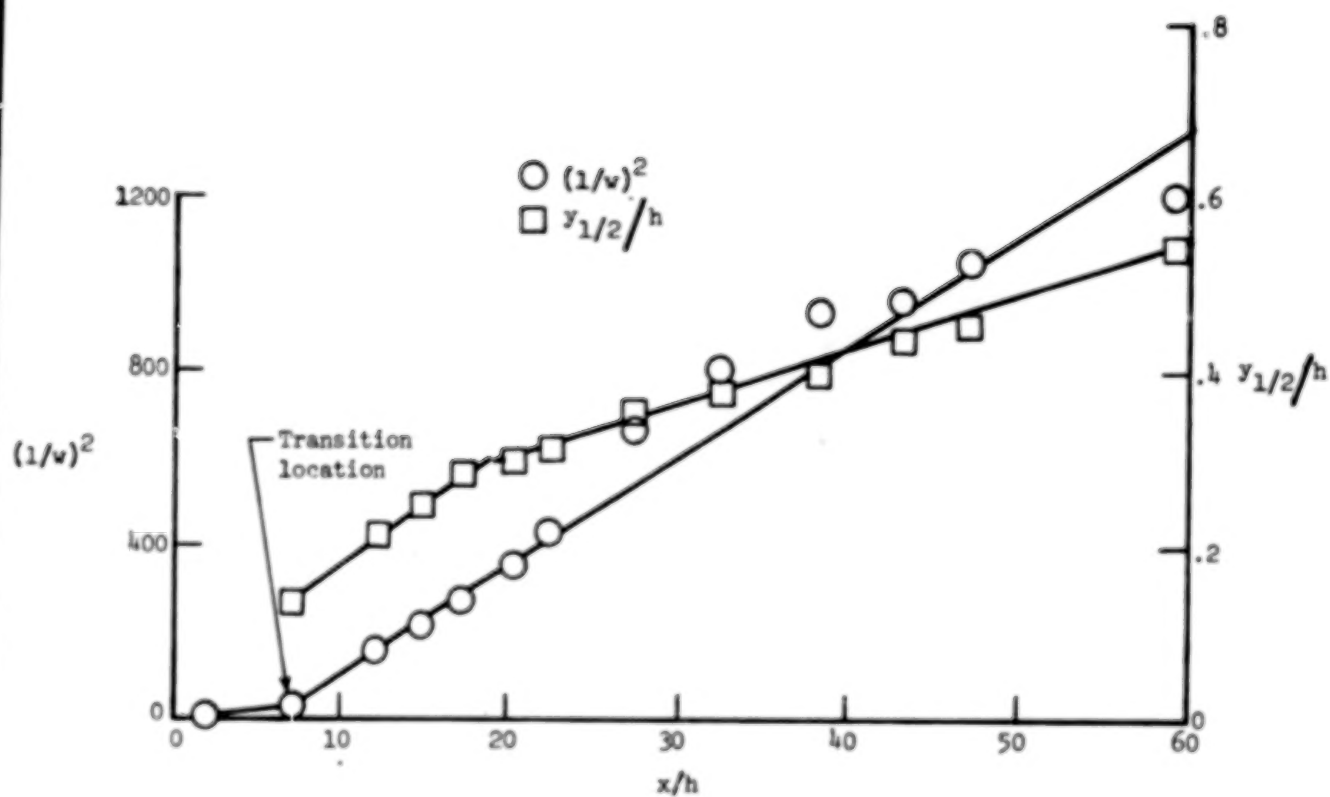
Figure 9.- Location of transition and wake growth for two-dimensional turbulent wake.

124
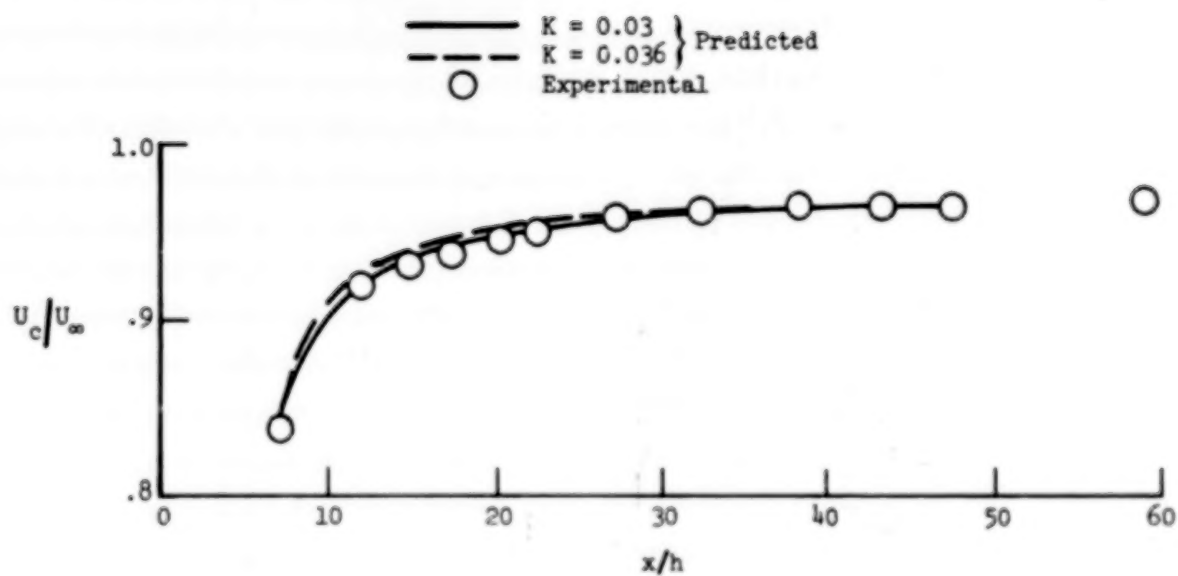
Figure 10.- Comparison of experimental and theoretical center-line velocity distributions for turbulent wake.

x/h = 3.7   5.7   7.7   9.7   x/h = 3.7   5.7   7.7   9.7

0° deflection   10° deflection

x/h = 3.7   5.7   7.7   9.7   x/h = 3.7   5.7   7.7   9.7

15° deflection   20° deflection
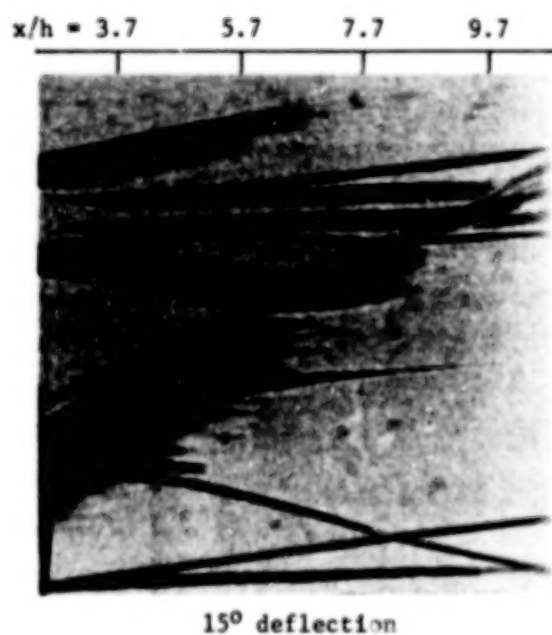
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Figure 11.- Schlieren photographs of shock interactions resulting from various
shock-generator deflection angles.

126
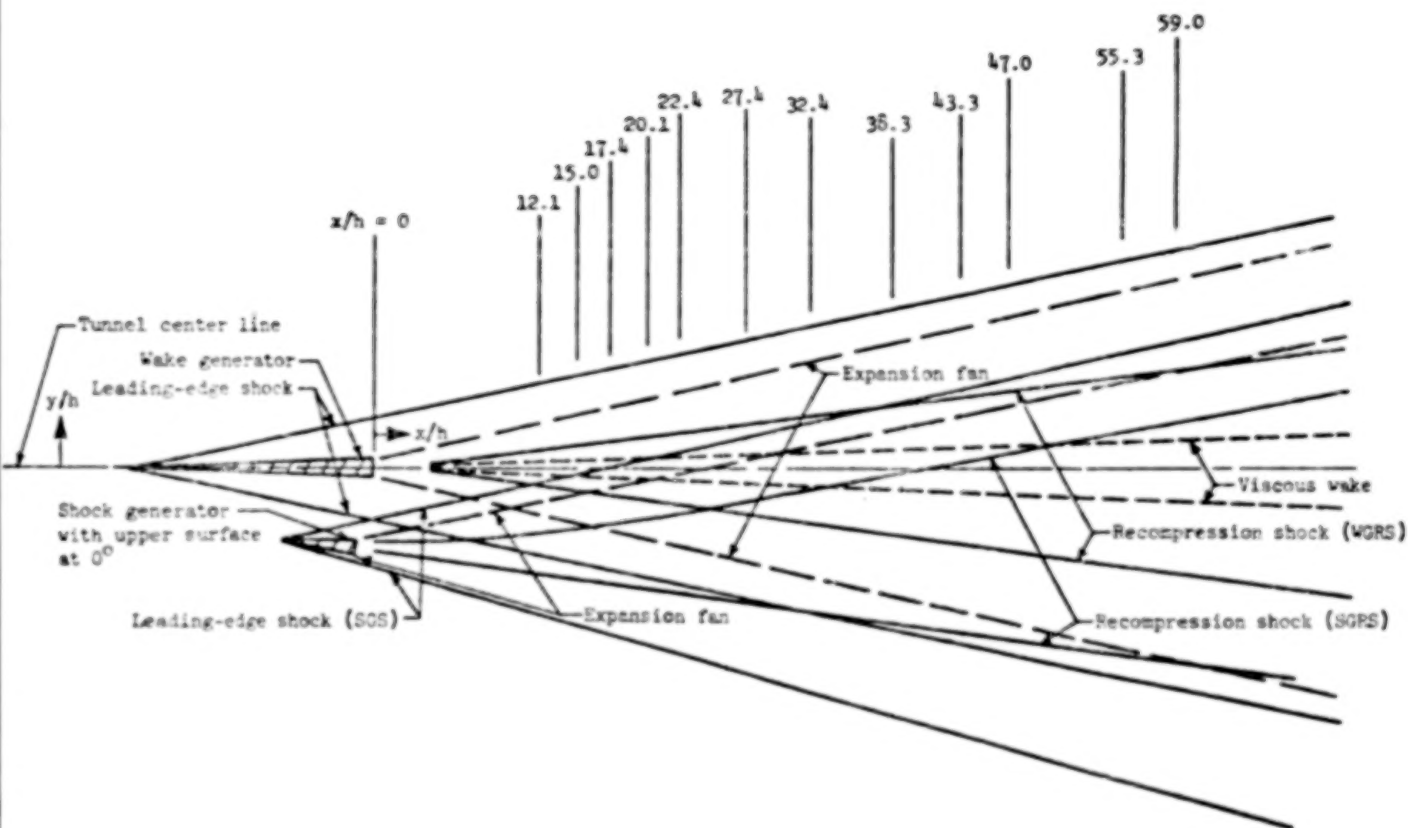
(a) 0° shock-generator deflection angle.

Figure 12.- Schematic diagram of shocks interacting with two-dimensional turbulent wake.

127
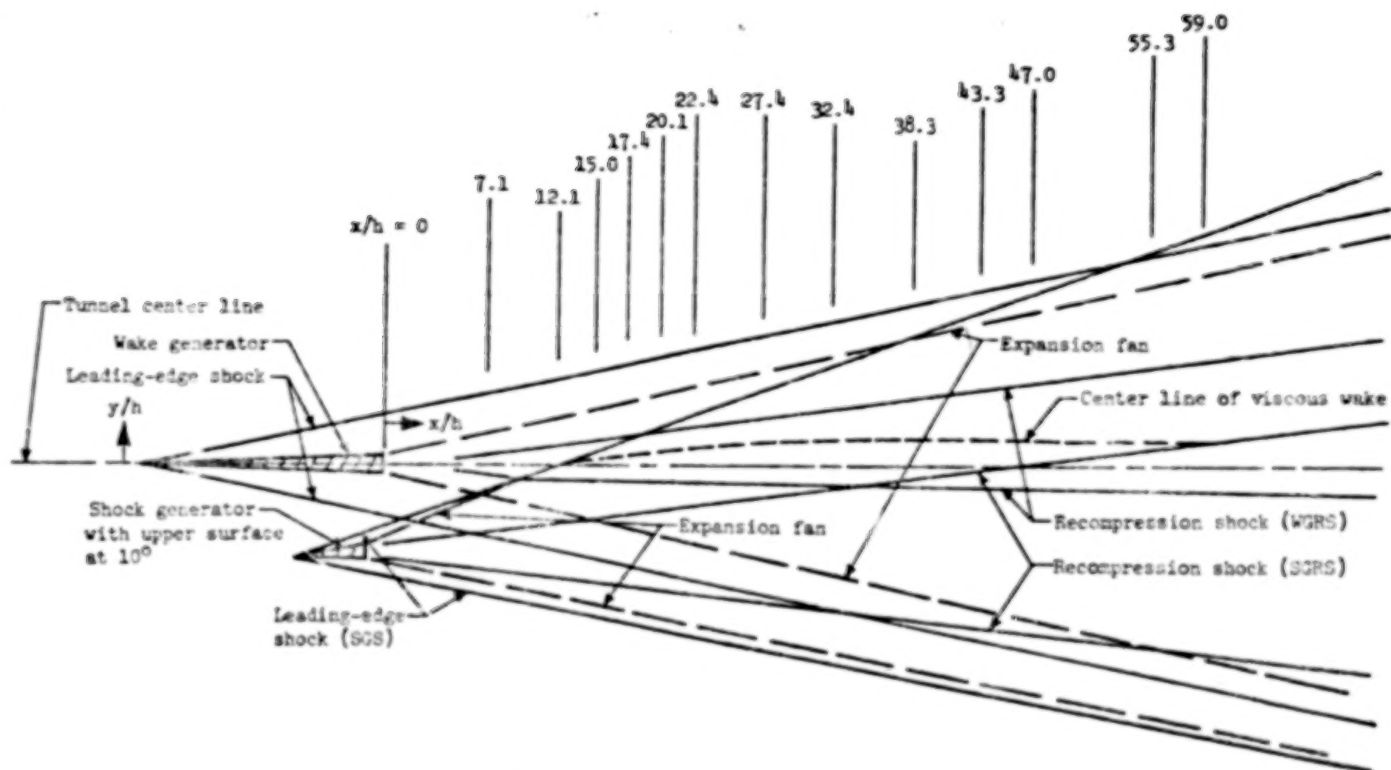
(b) 10° shock-generator deflection angle.

Figure 12.- Continued.

128
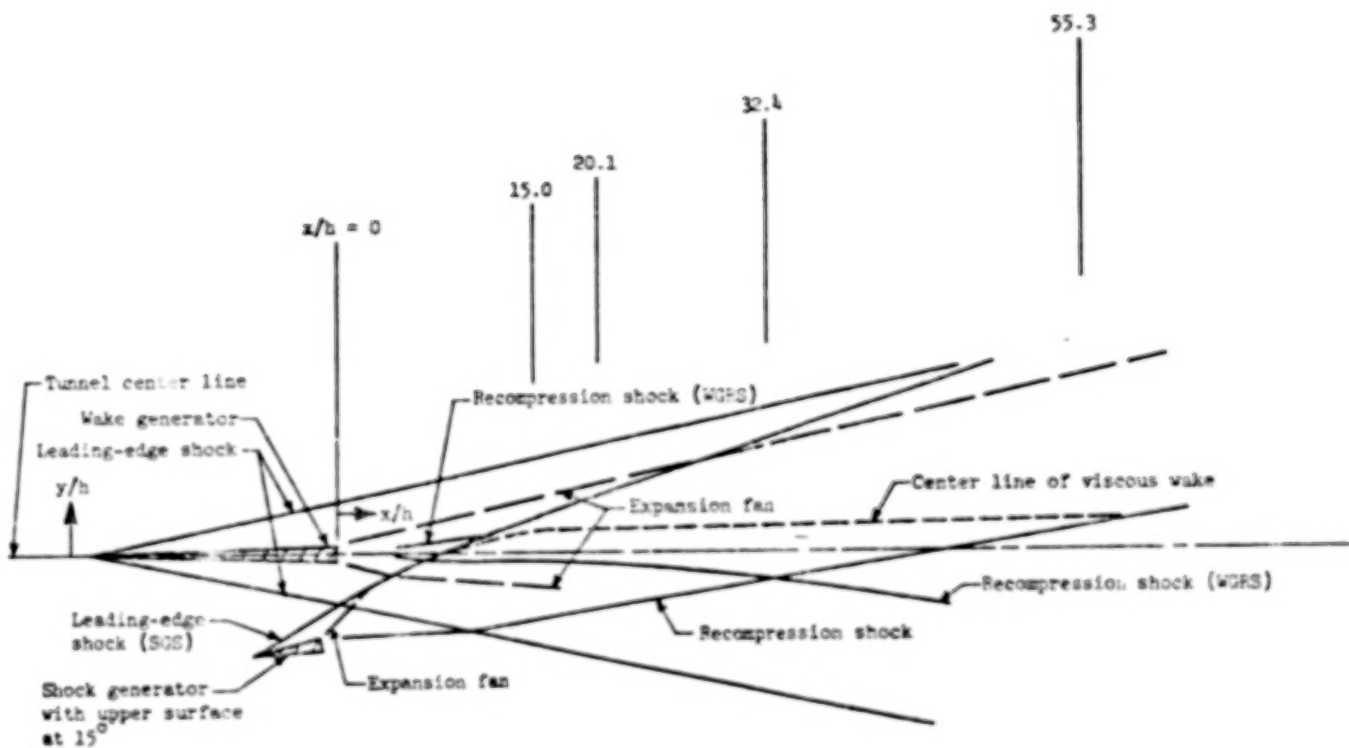
(c) 15° shock-generator deflection angle.

Figure 12.- Continued.

129
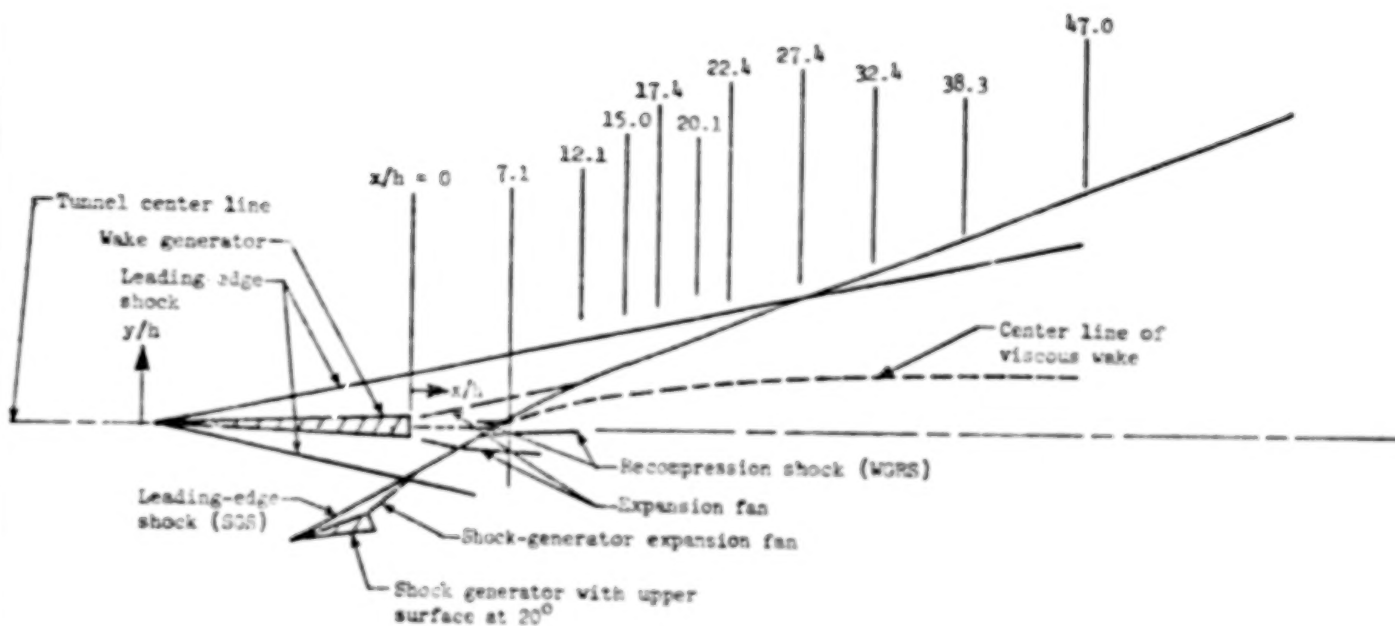
(d) 20° shock-generator deflection angle.

Figure 12.- Concluded.

130
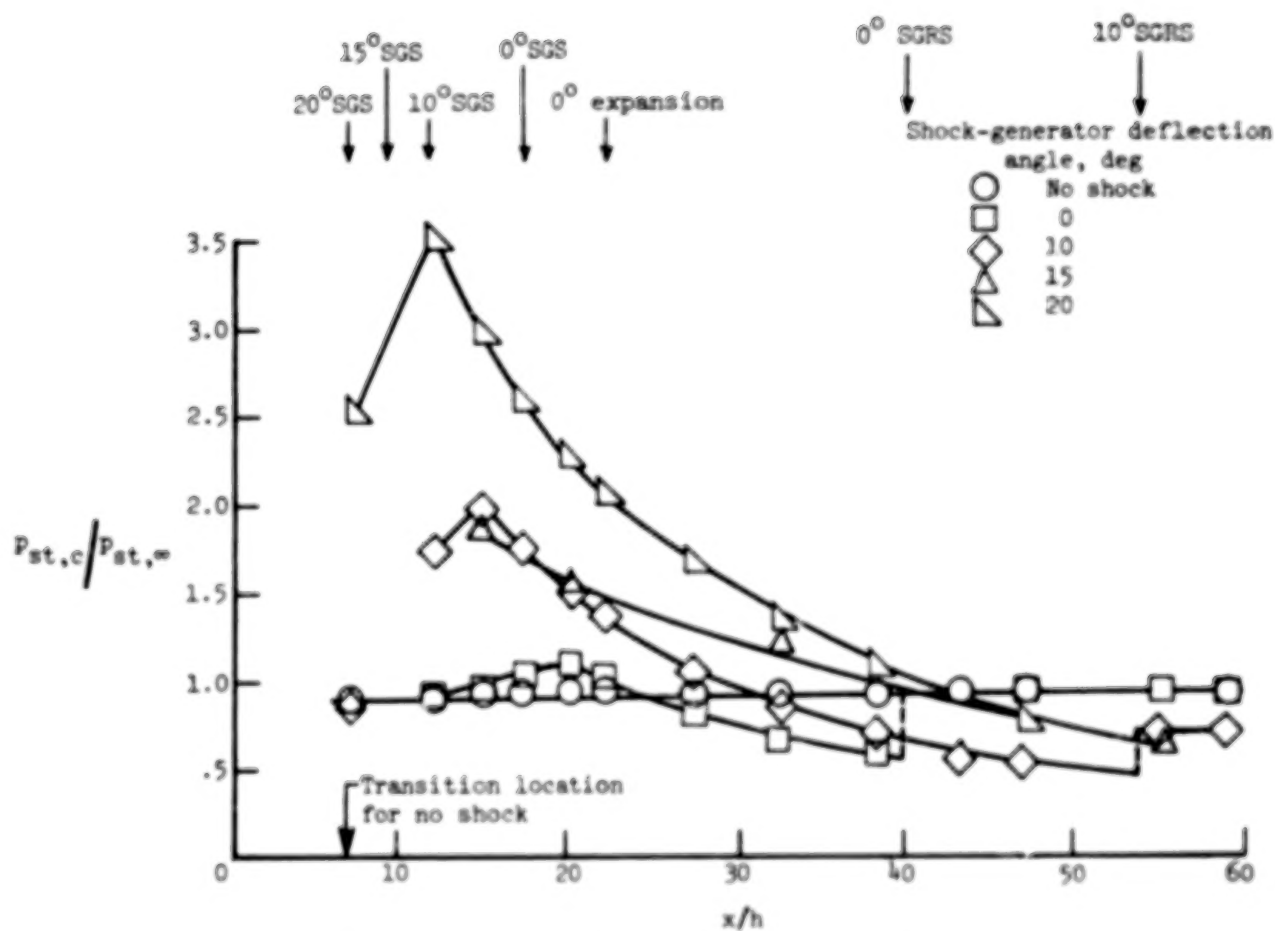
Figure 13.- Wake center-line static-pressure distribution.
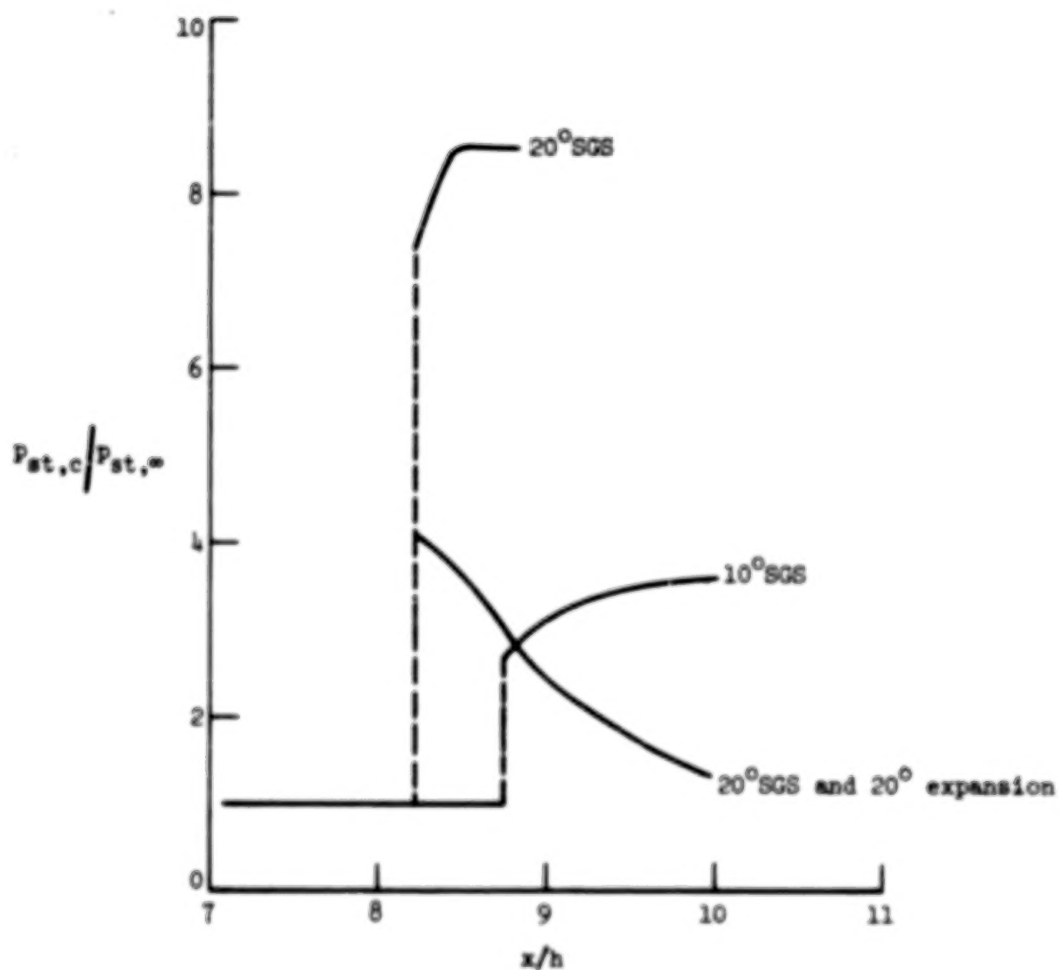
Figure 14.- Wake center-line static-pressure distribution downstream of shock and expansion interactions predicted by inviscid calculation method of Salas (ref. 41).
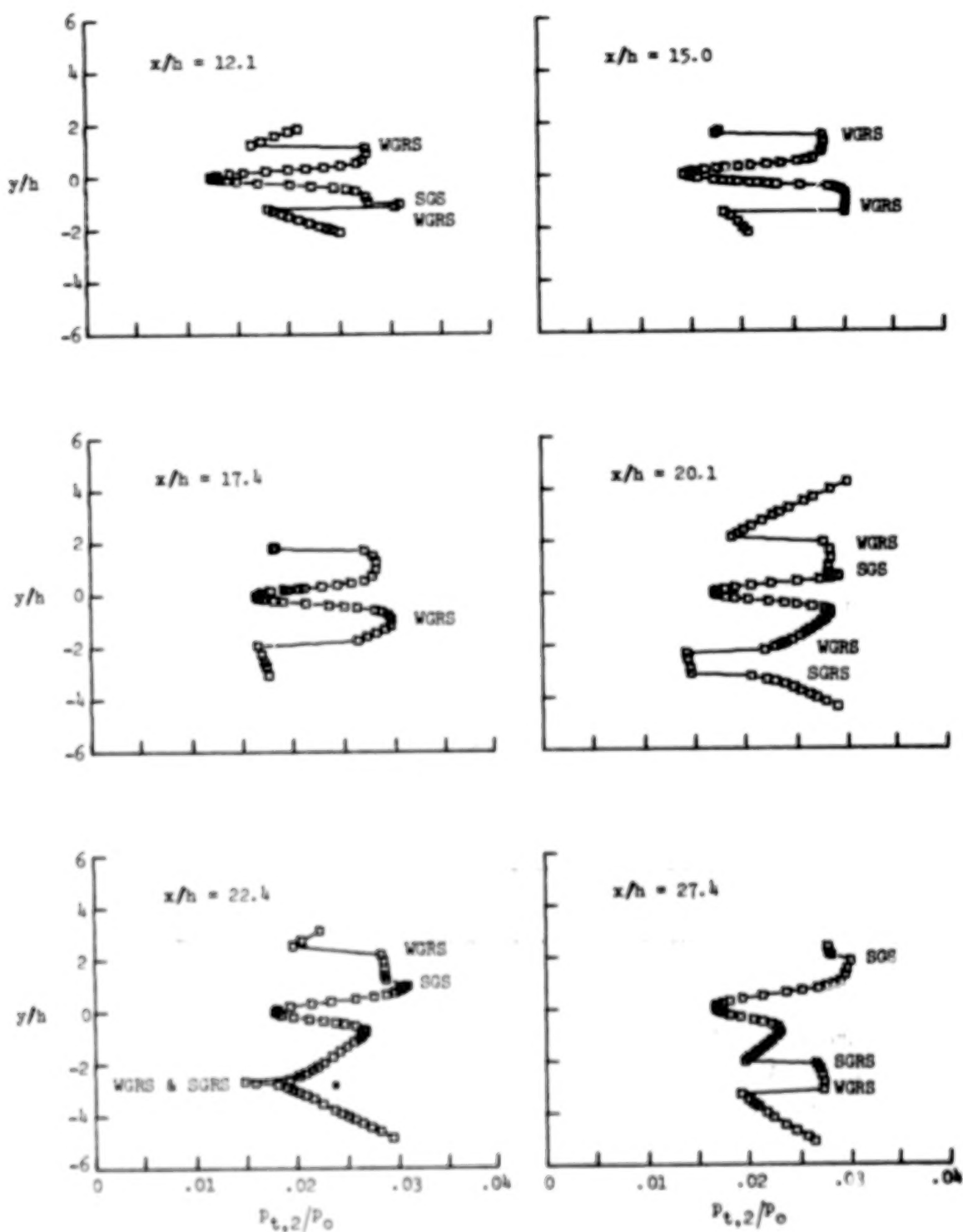
(a) 0° deflection.

Figure 15.- Pitot-pressure profiles for various shock-generator deflection angles.

133
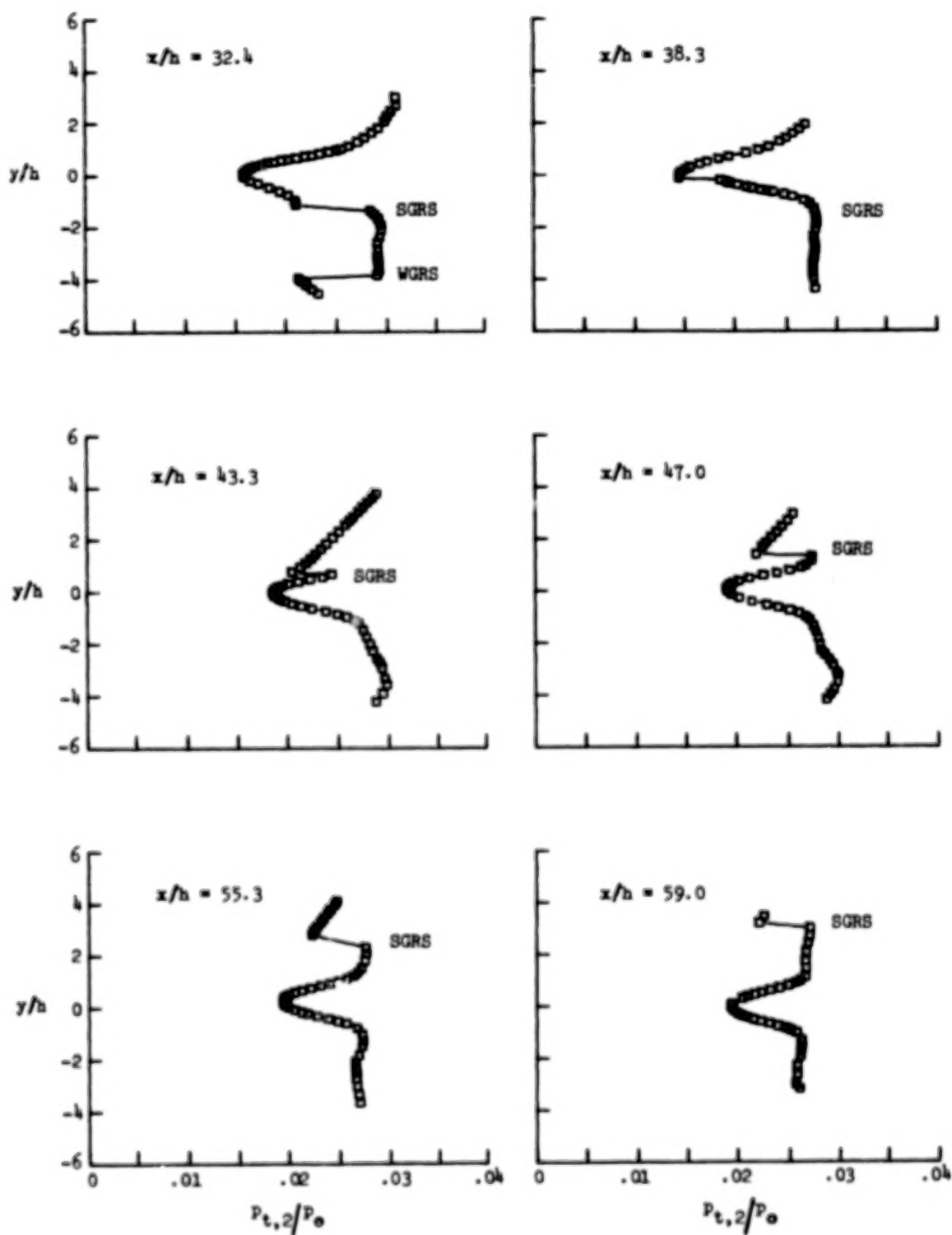
(a) Concluded.

Figure 15.- Continued.
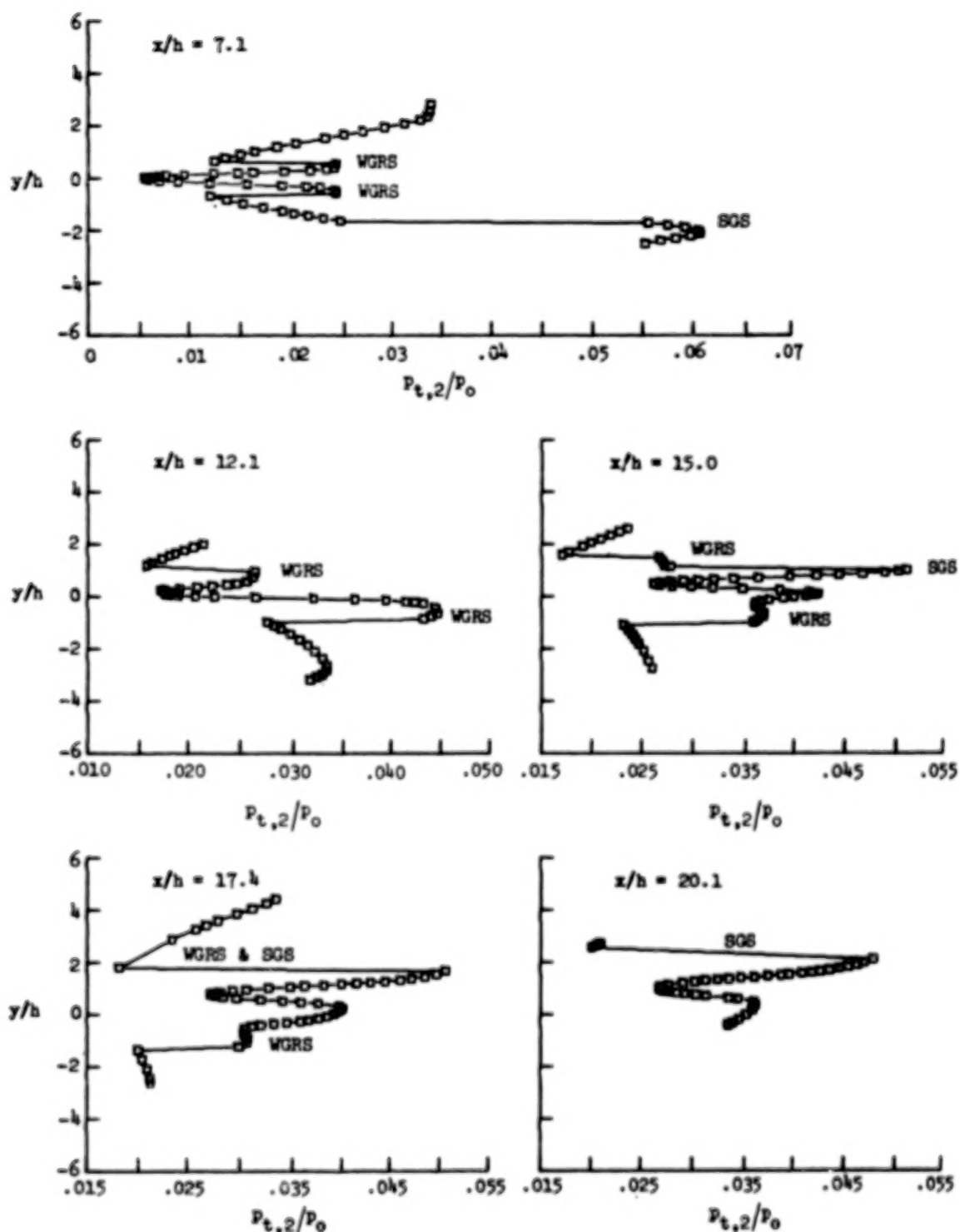
(b) 10° deflection.

Figure 15.- Continued.
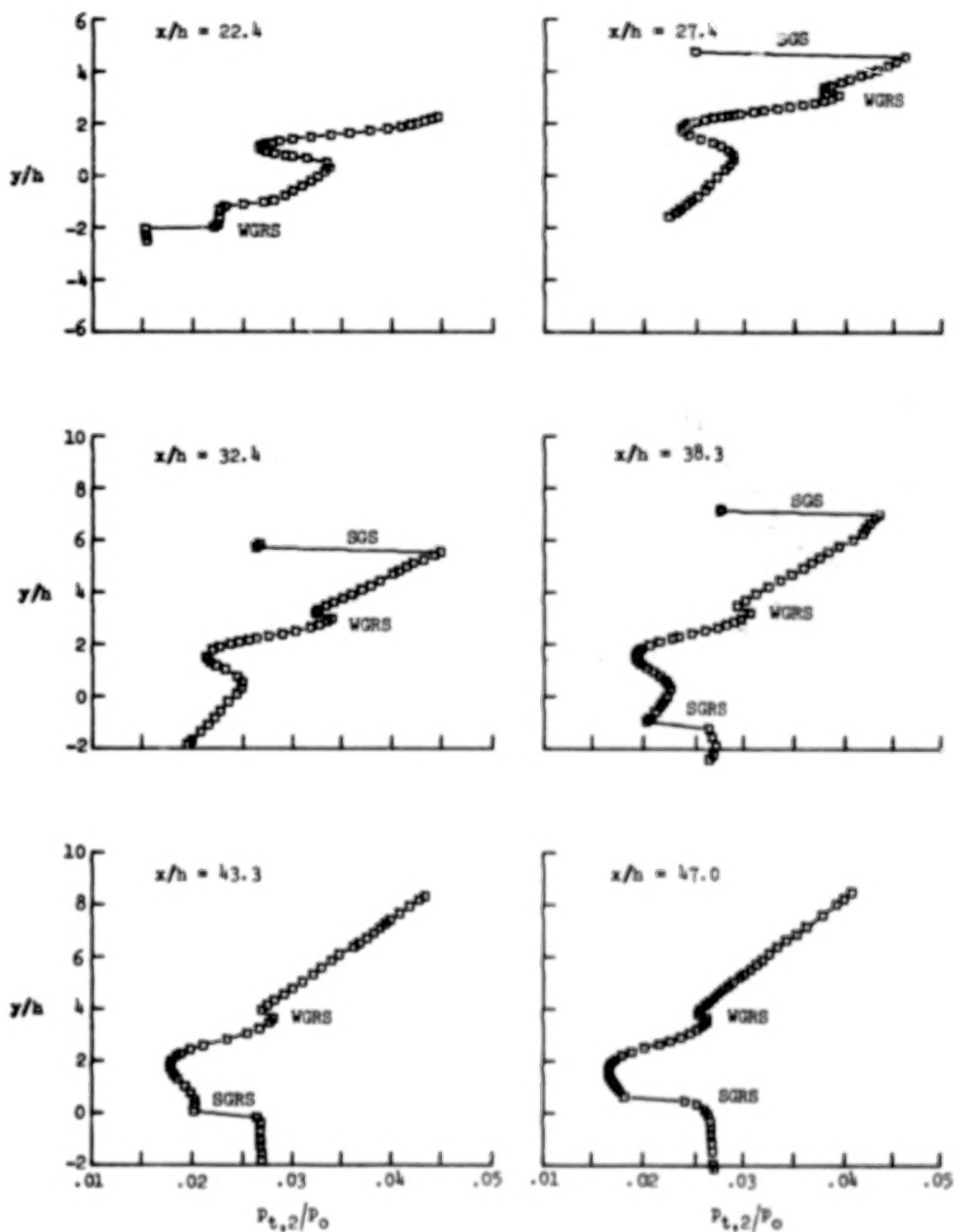
(b) Continued.

Figure 15.- Continued.
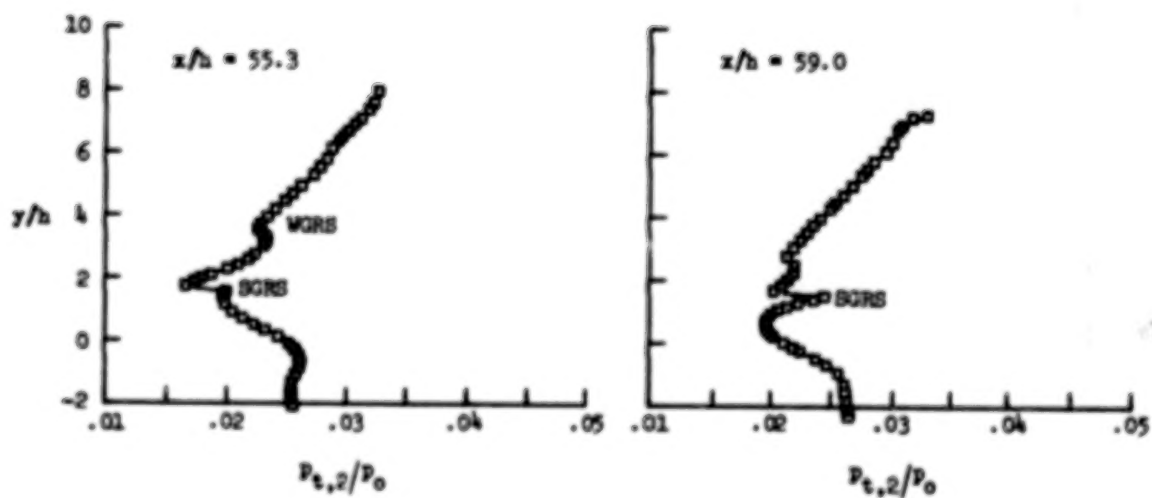
(b) Concluded.

Figure 15.- Continued.
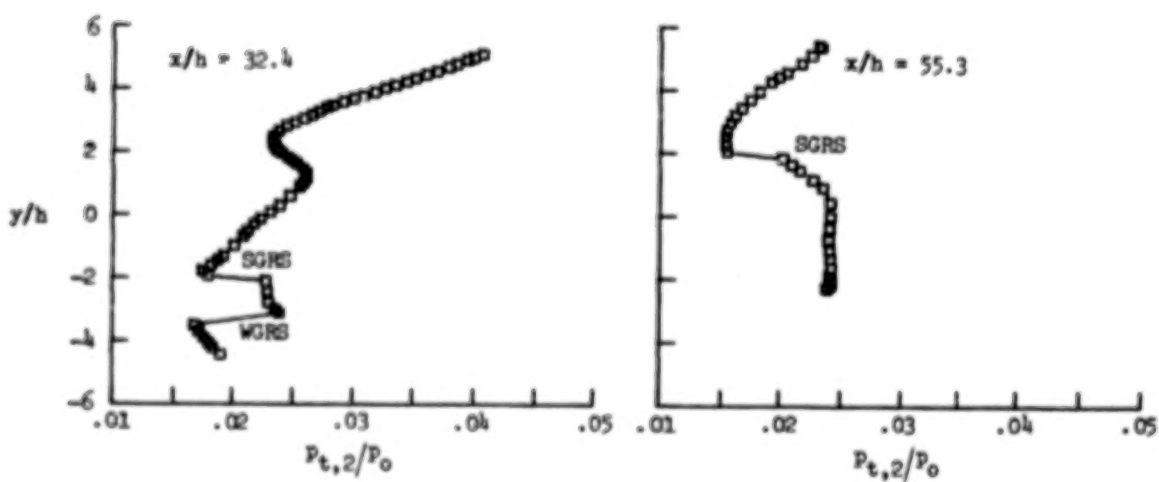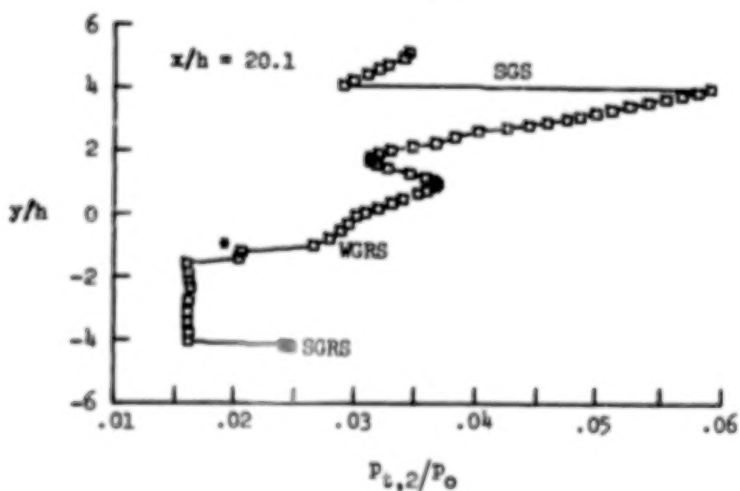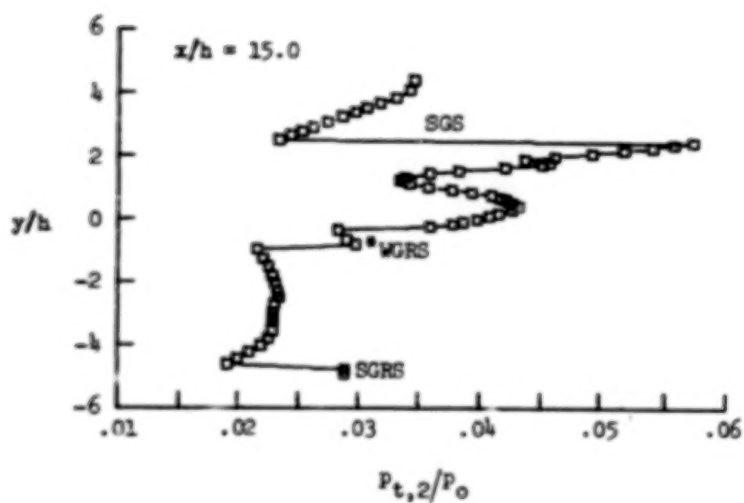
(c) 15° deflection.

Figure 15.- Continued.
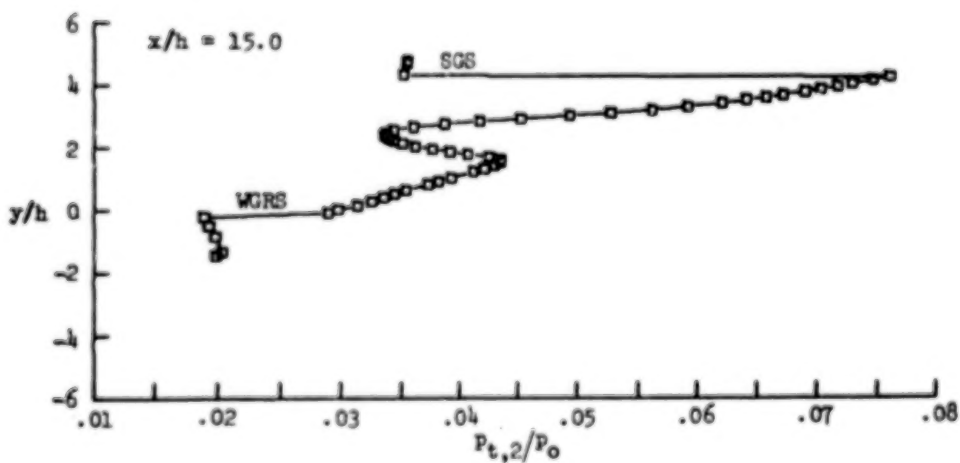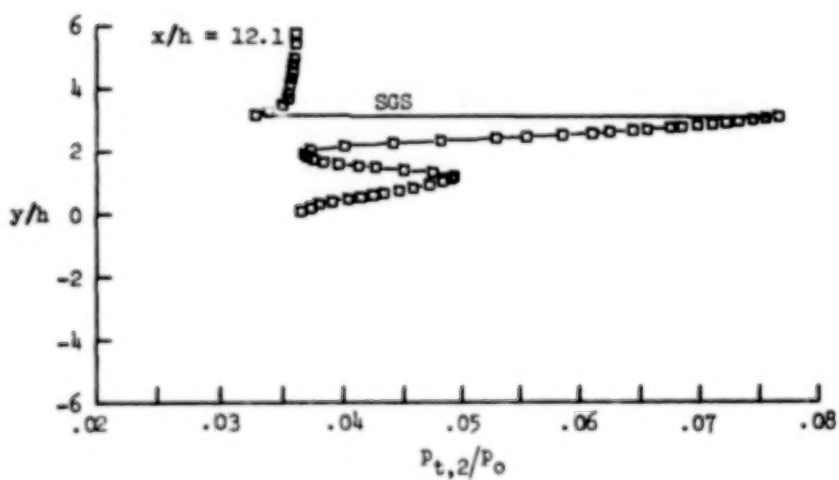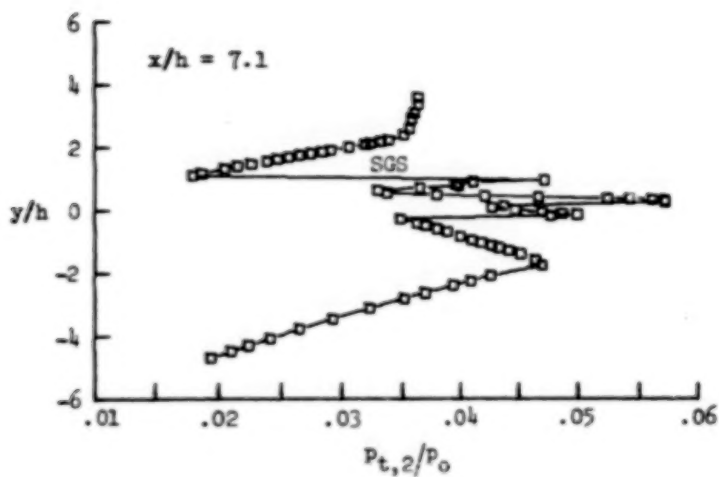
(d) 20° deflection.

Figure 15.- Continued.
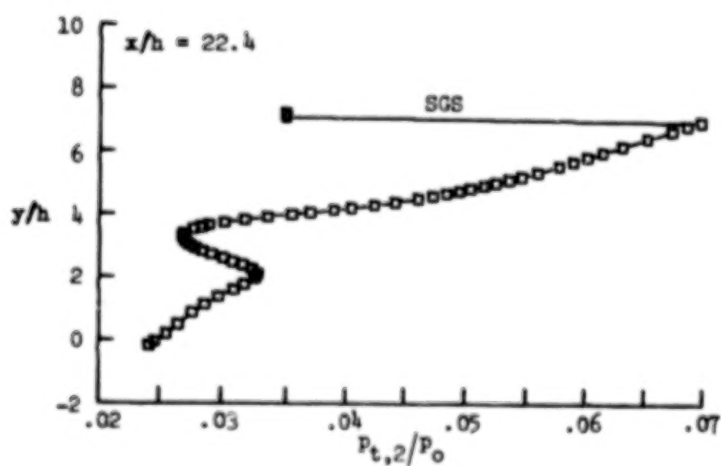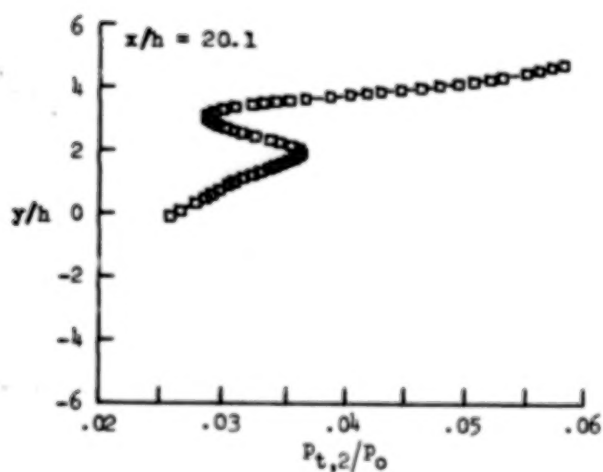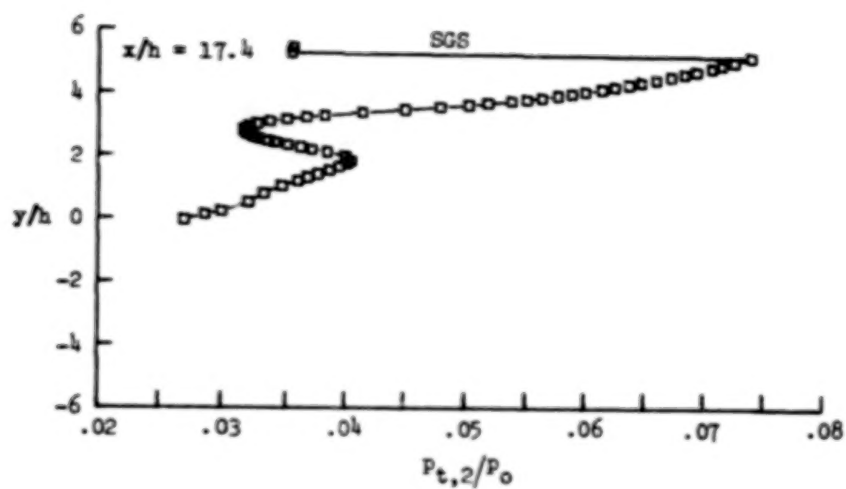
(d) Continued.

Figure 15.- Continued.
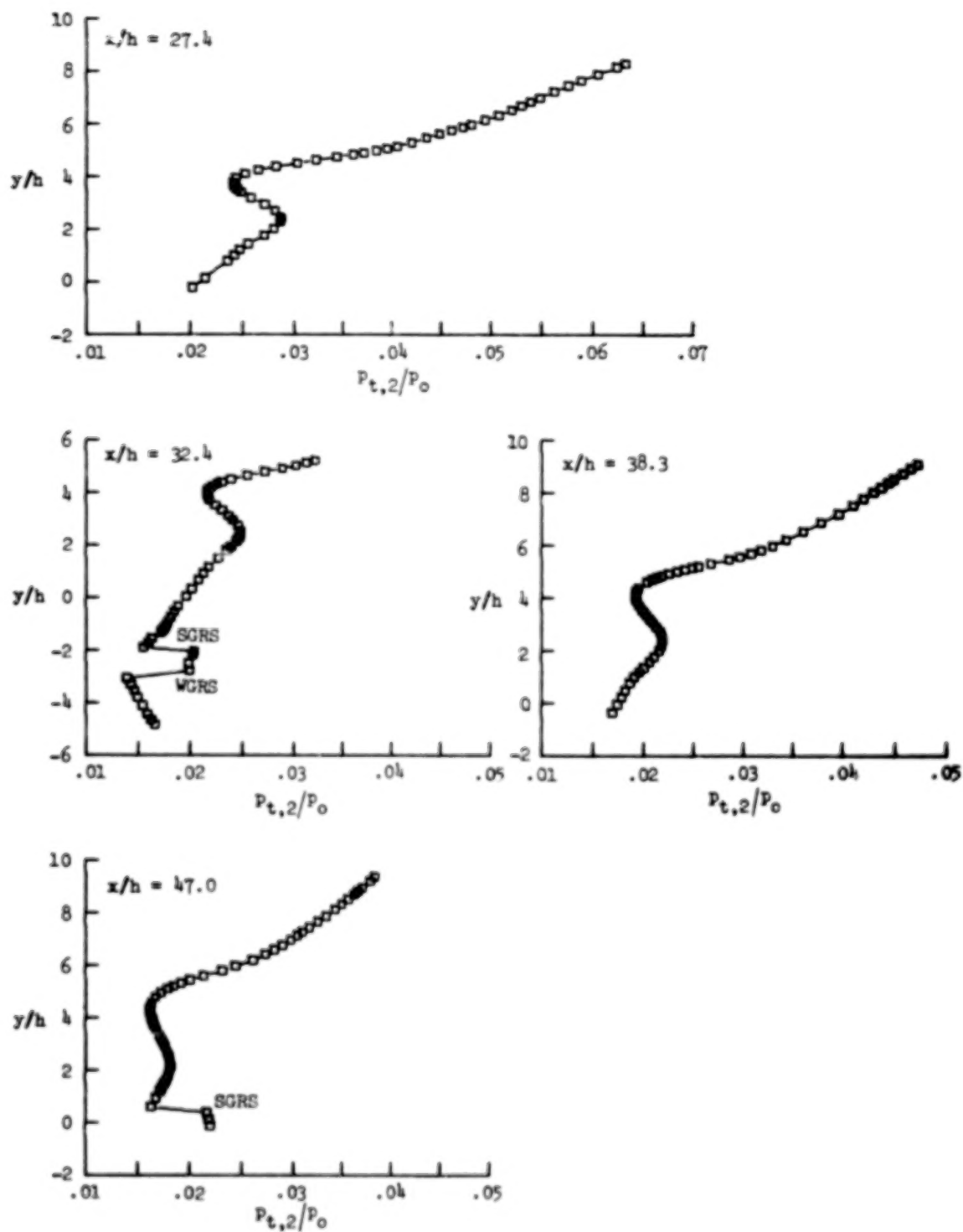
(d) Concluded.

Figure 15.- Concluded.
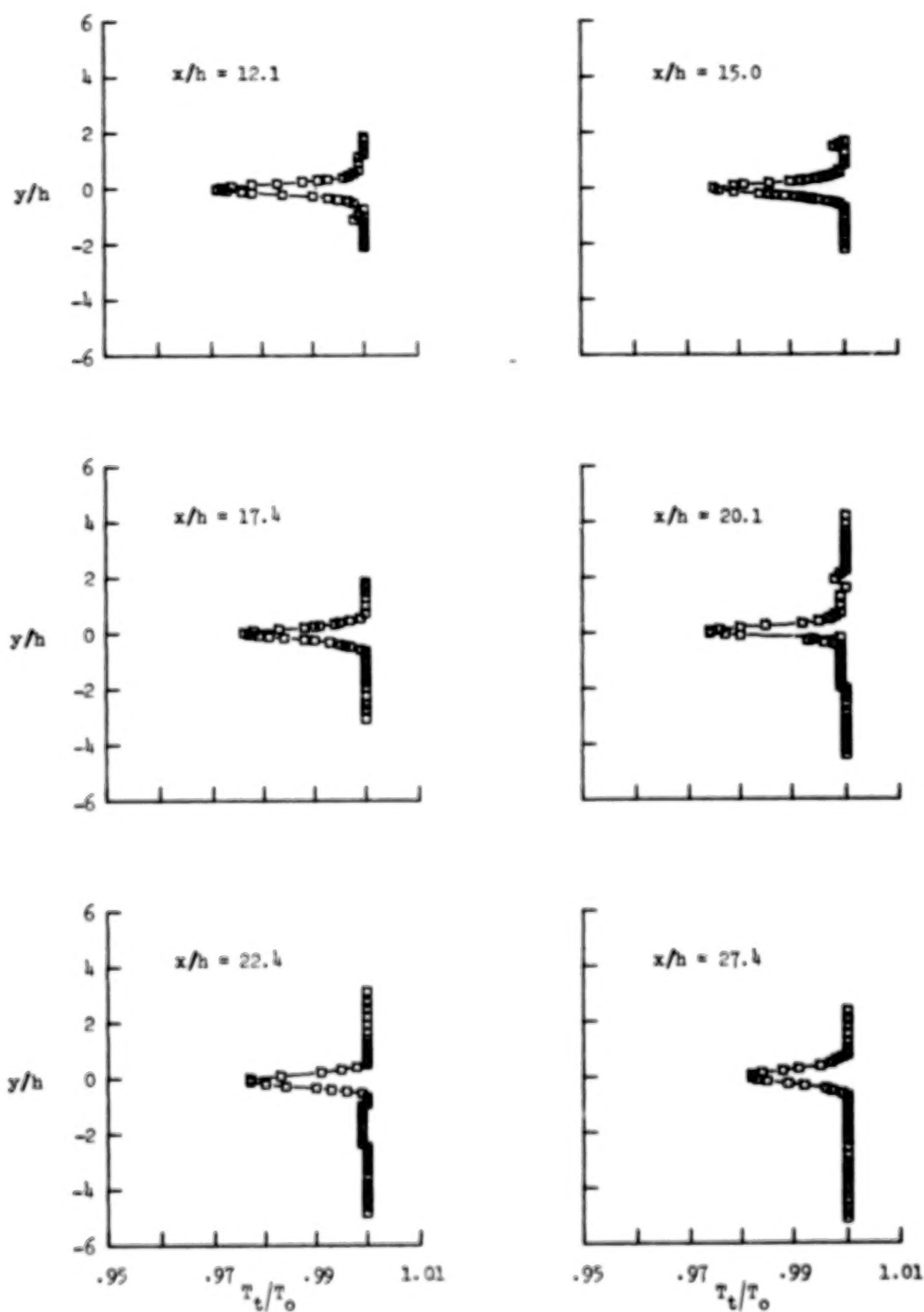
(a) 0° deflection.

Figure 16.- Total-temperature profiles for various shock-generator deflection angles.
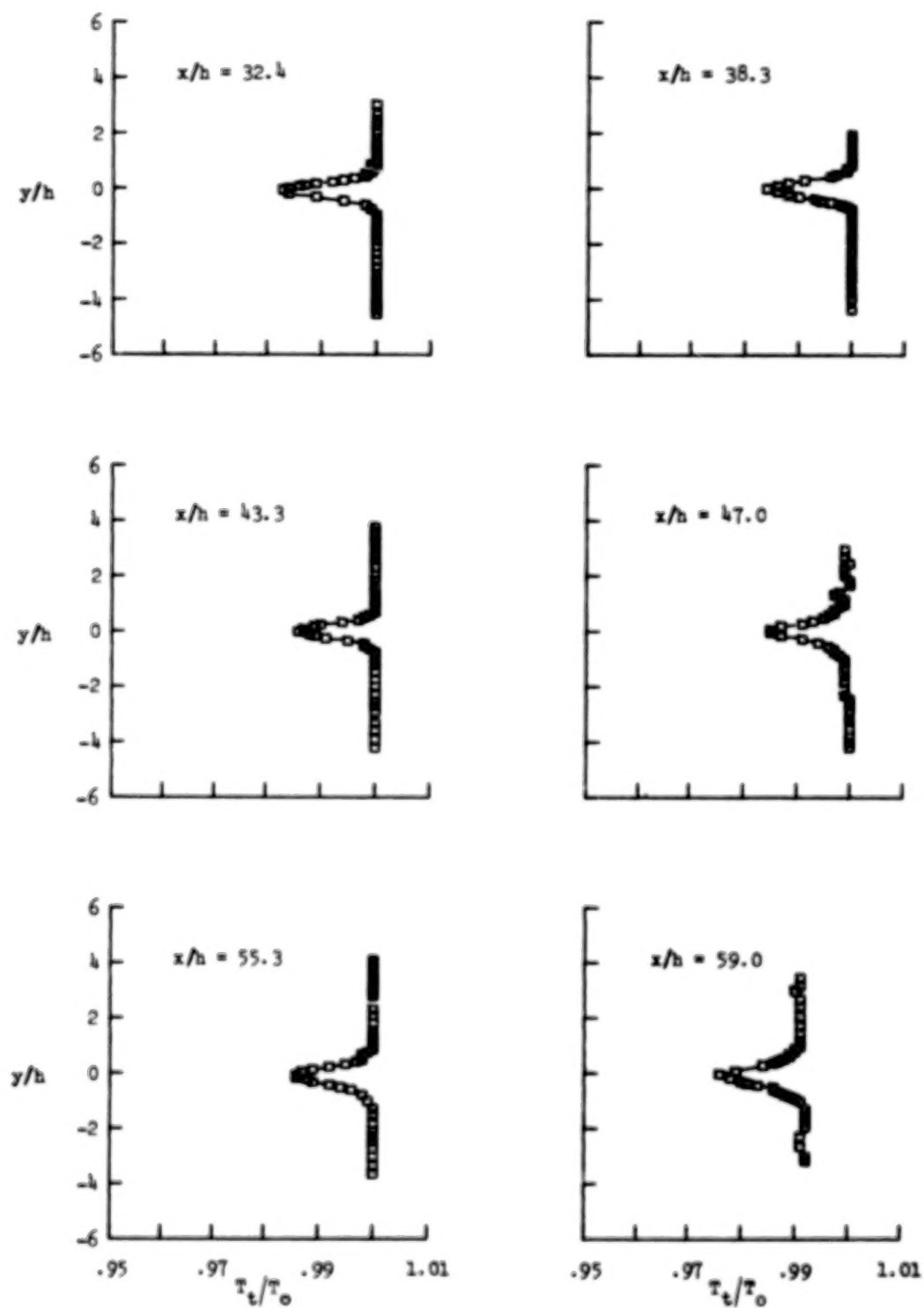
(a) Concluded.
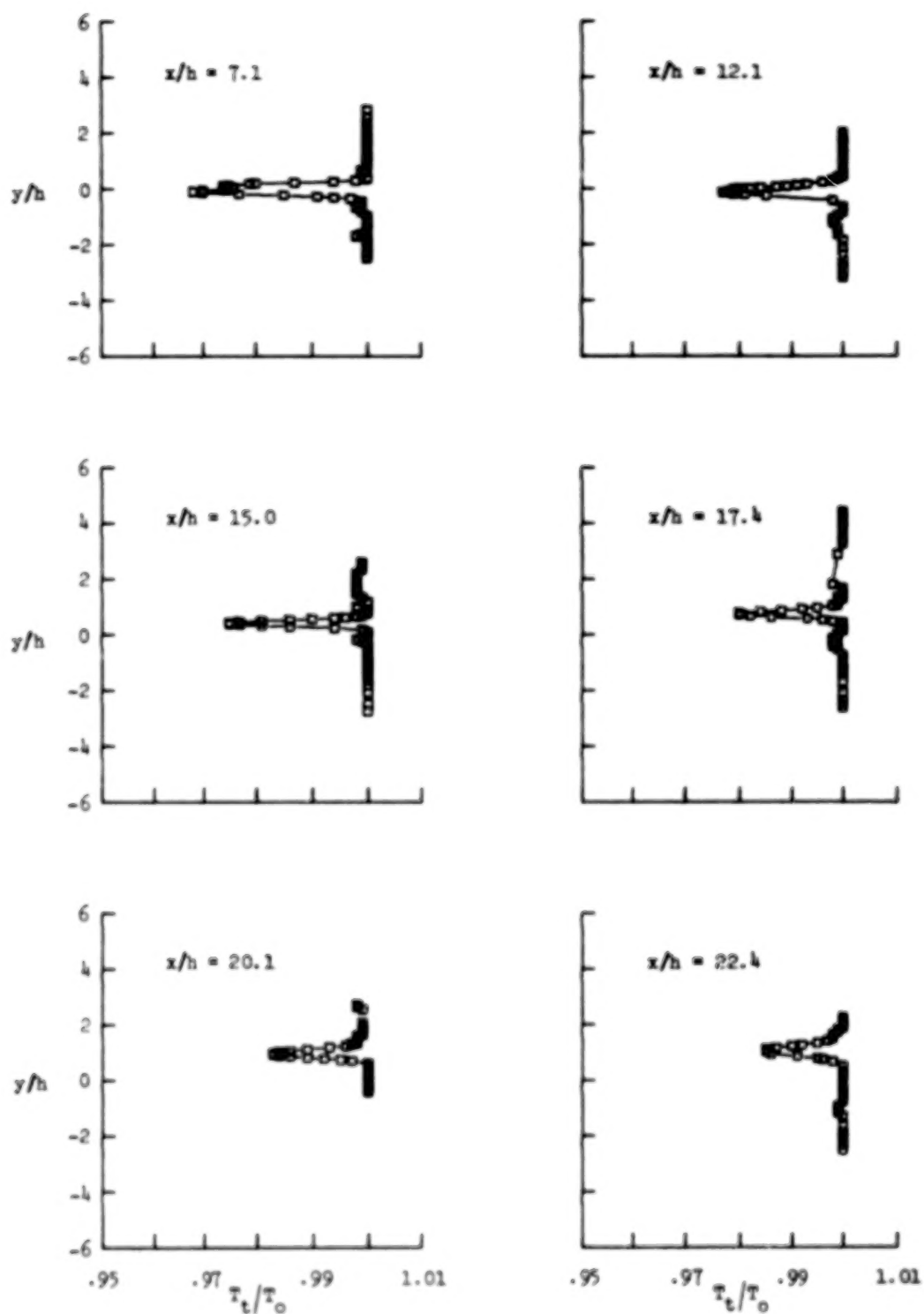
Figure 16.- Continued.

(b) 10° deflection.

Figure 16.- Continued.
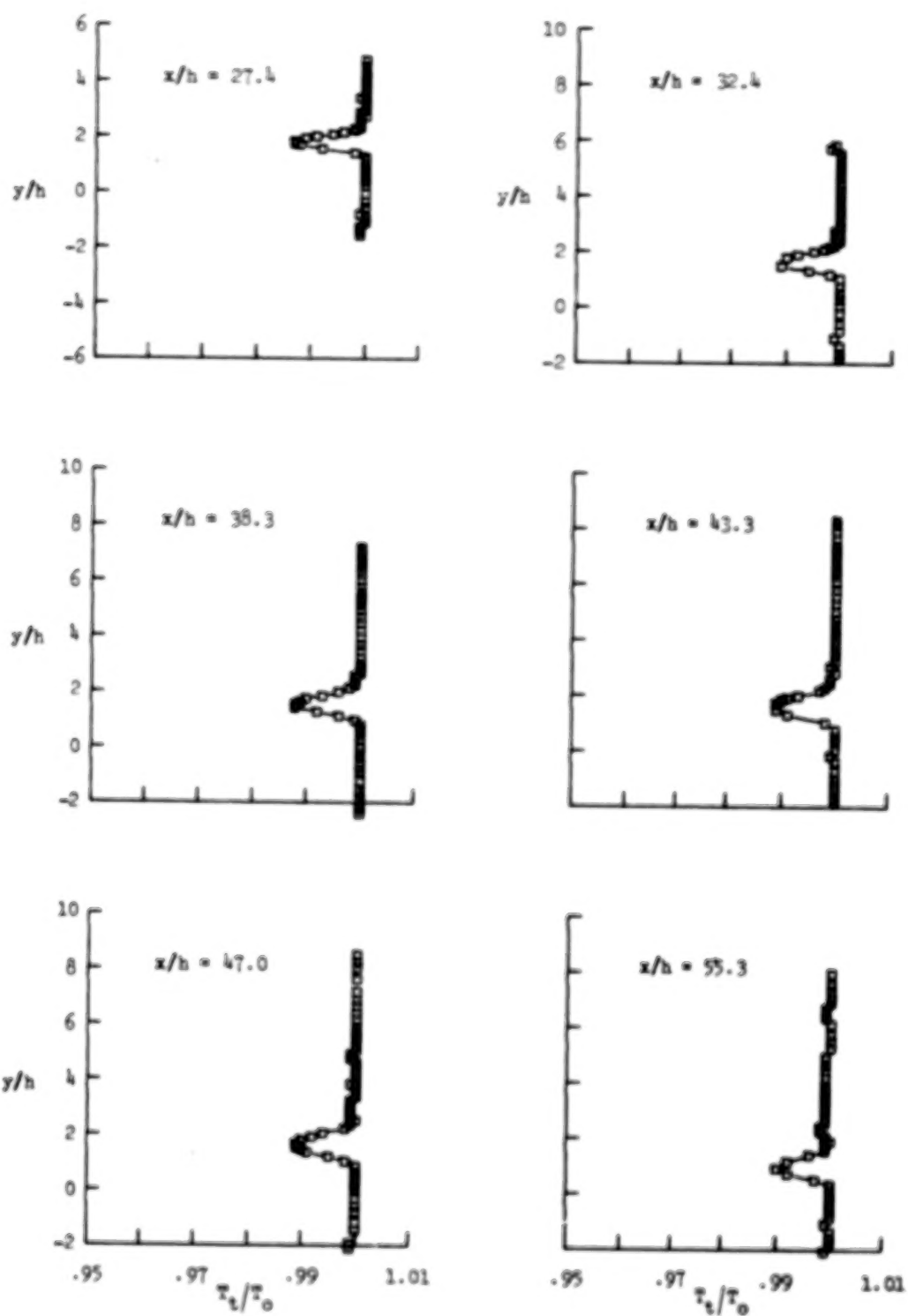
(b) Continued.

Figure 16.- Continued.
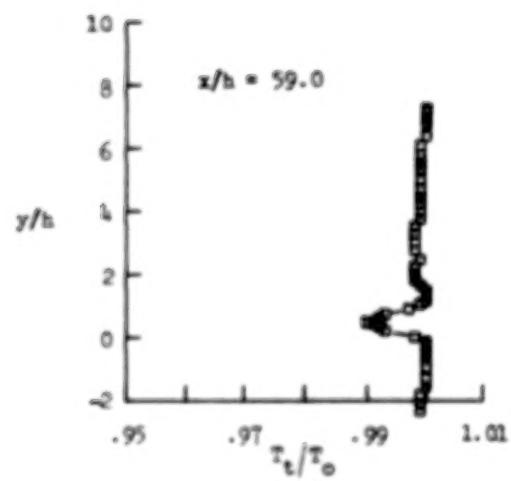
(b) Concluded.

Figure 16.- Continued.
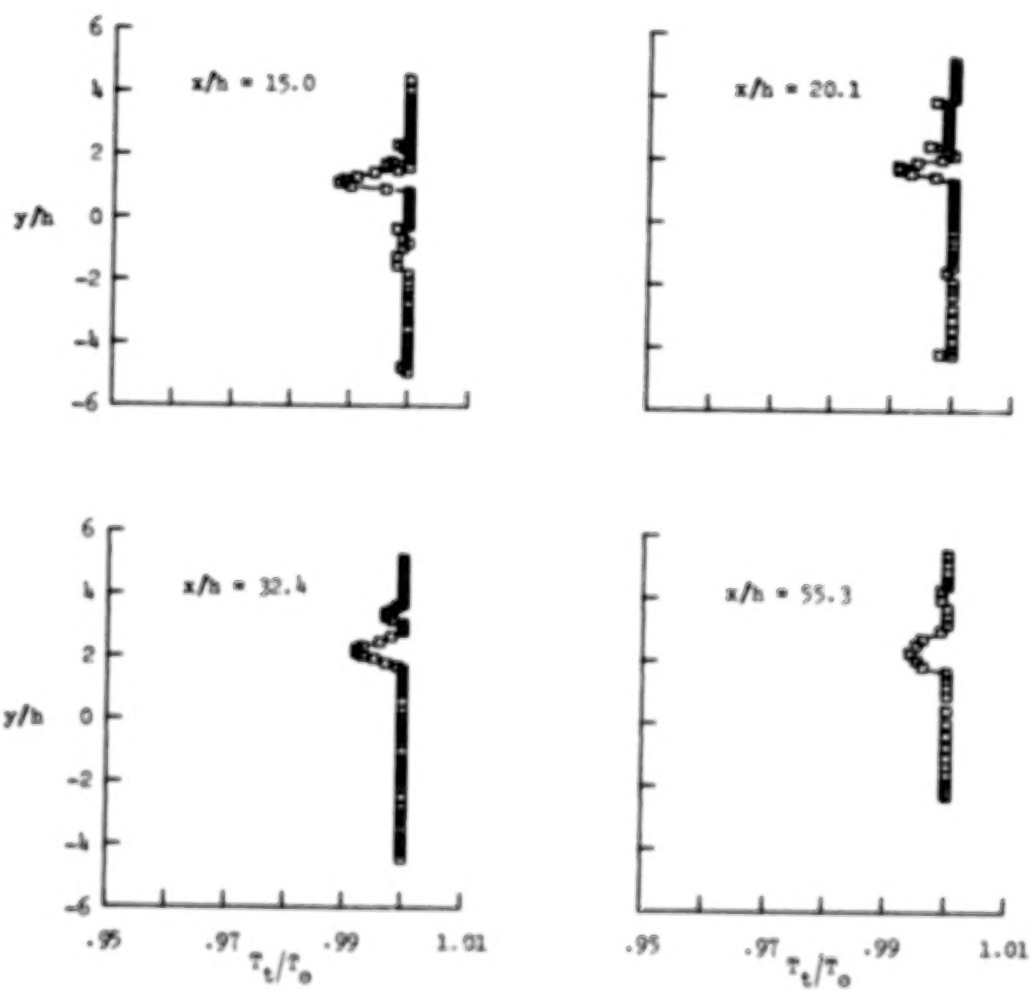
(c) 15° deflection.

Figure 16.- Continued.
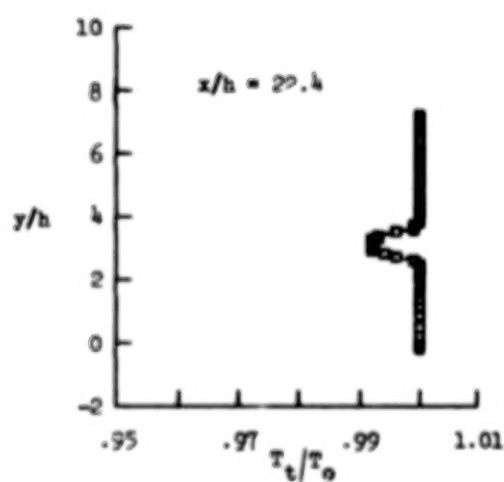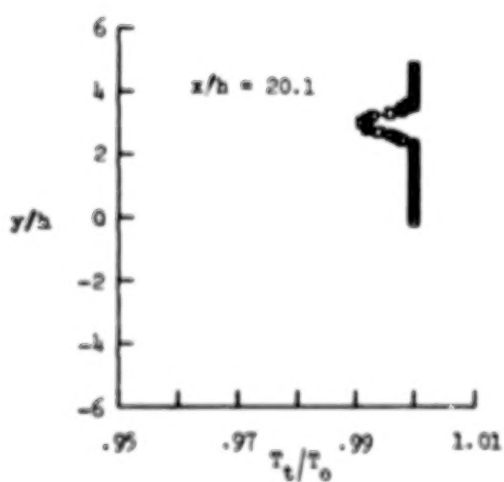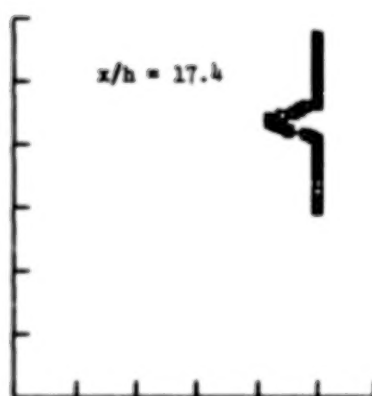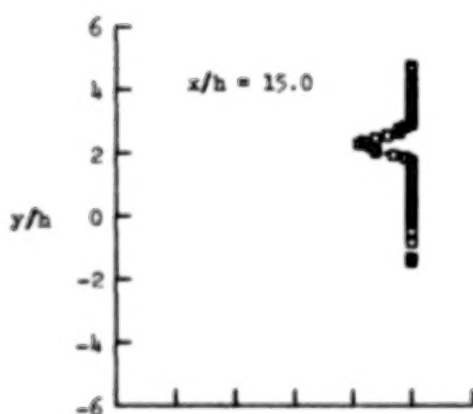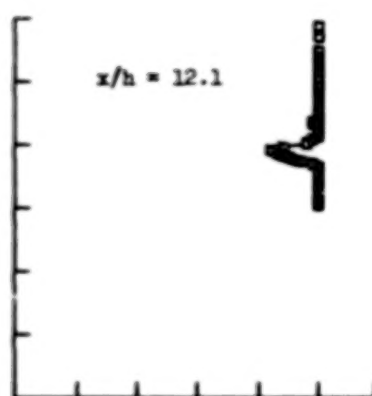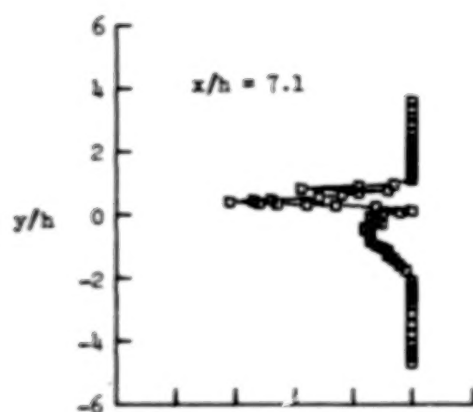
(d) 20° deflection.

Figure 16.- Continued.
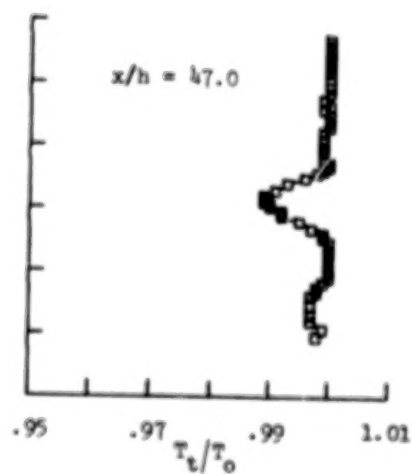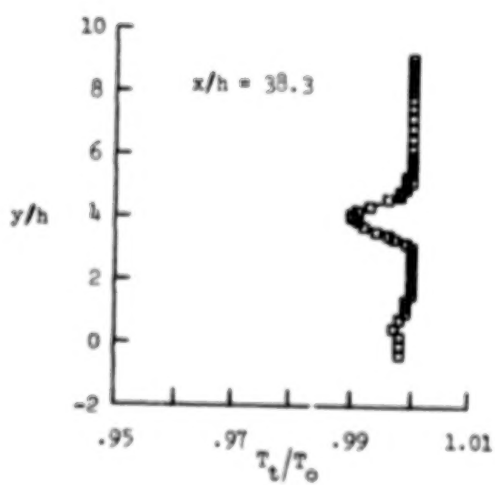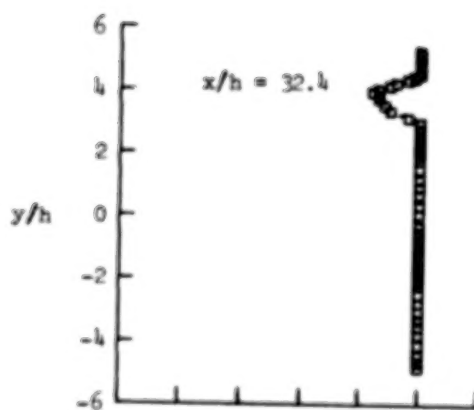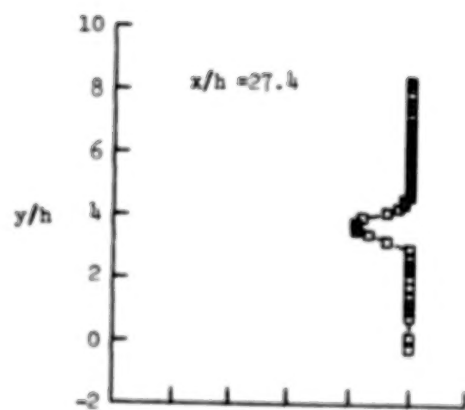
(d) Concluded.

Figure 16.- Concluded.
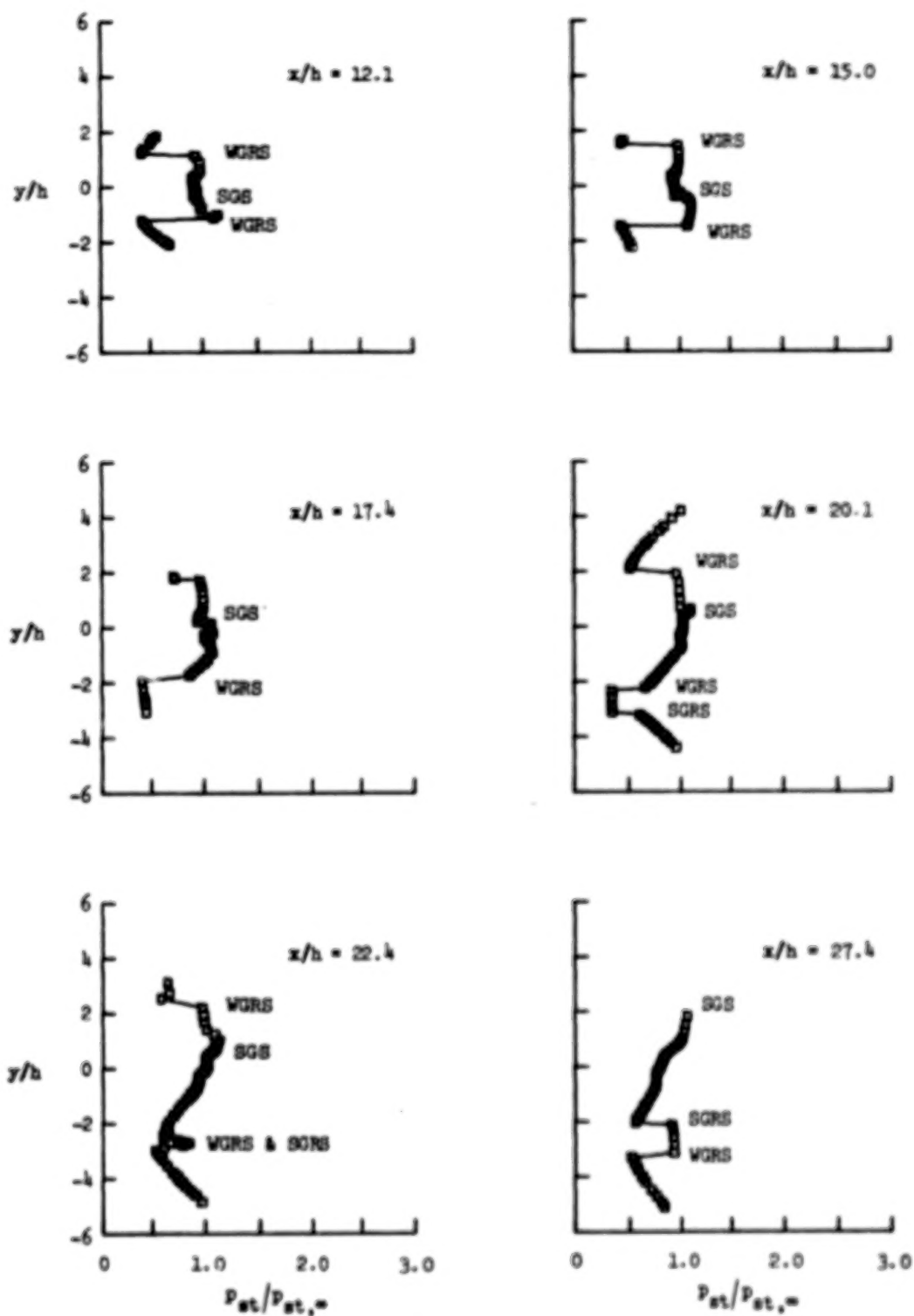
(a) 0° deflection.

Figure 17.- Static-pressure profiles for various shock-generator deflection angles.

(a) Concluded.

Figure 17.- Continued.

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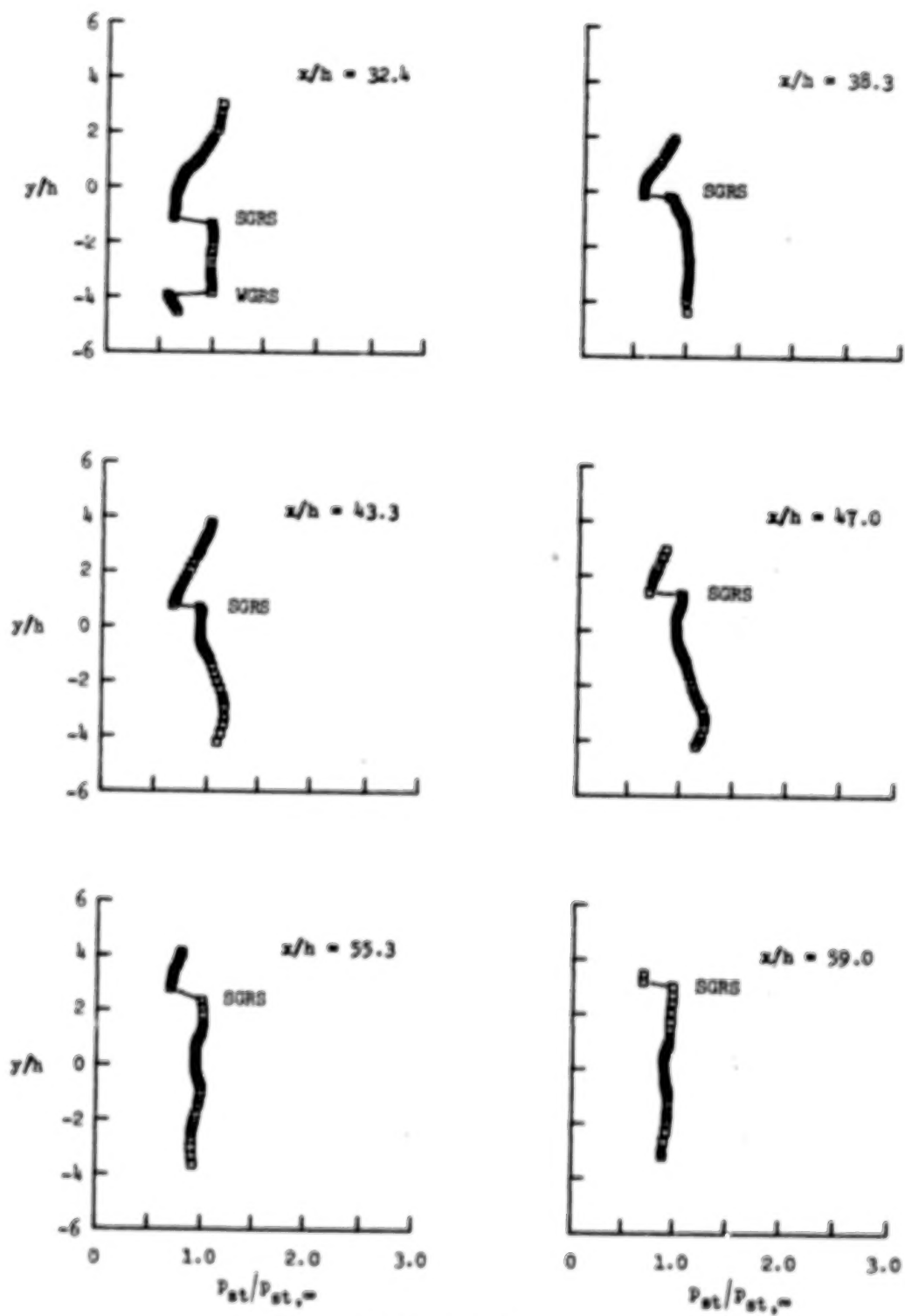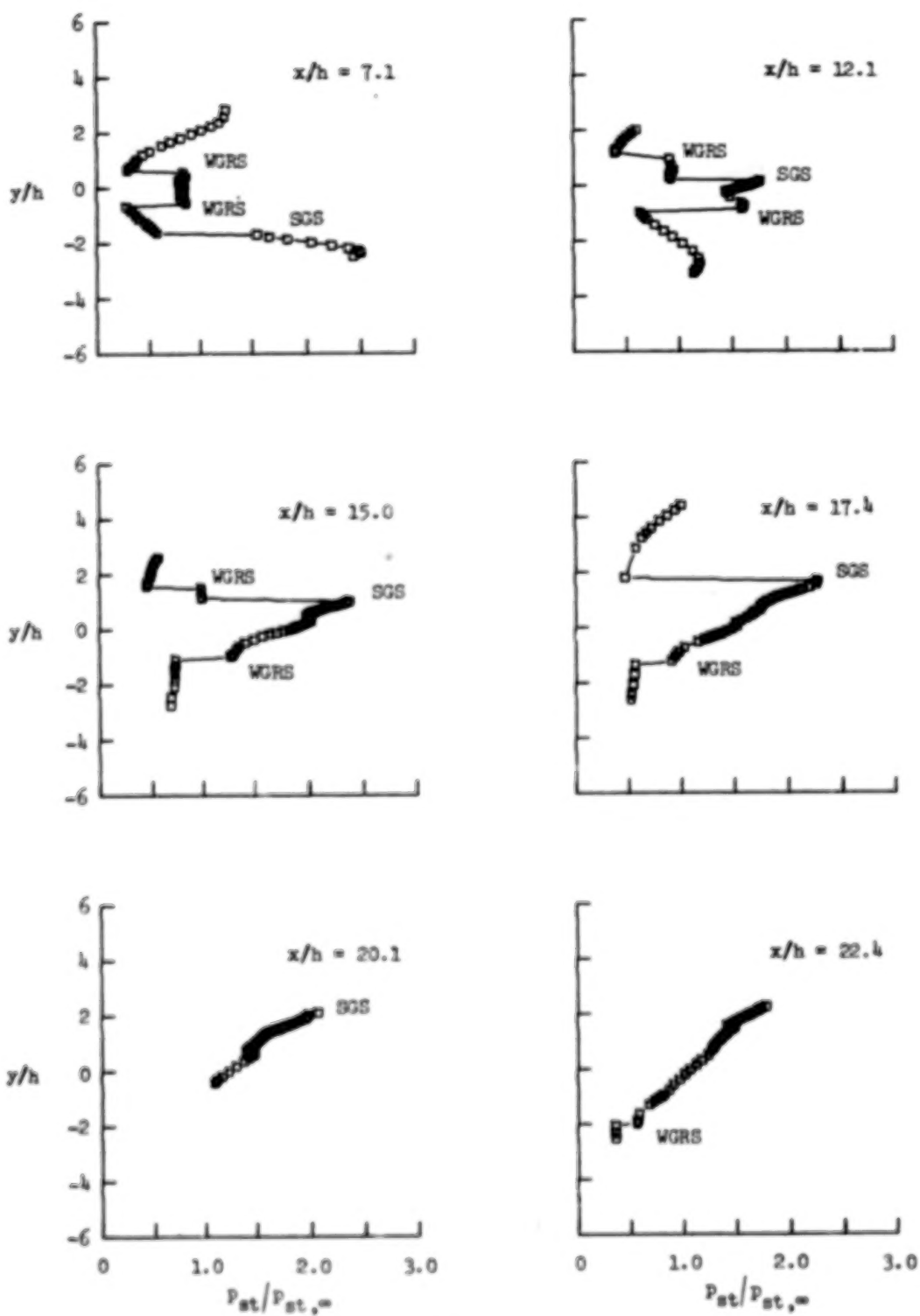
(b) 10° deflection.

Figure 17.- Continued.
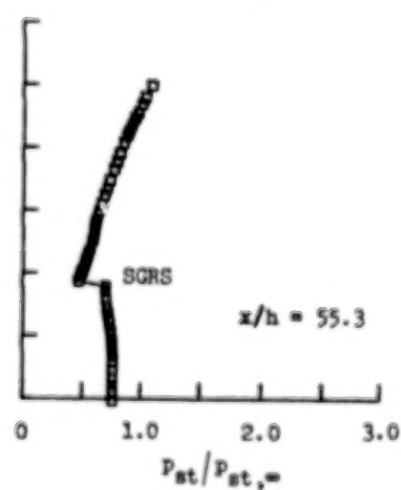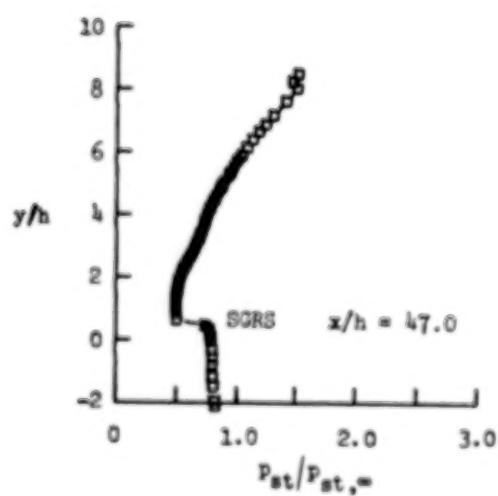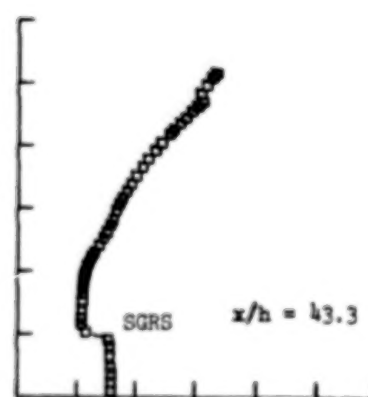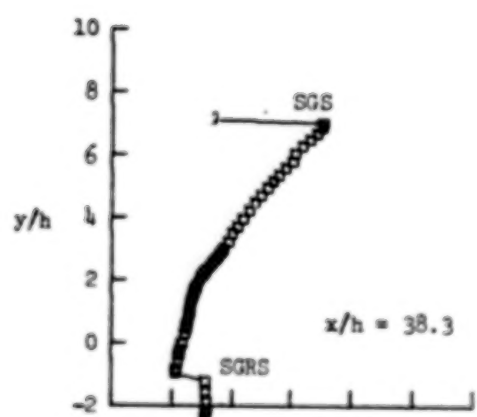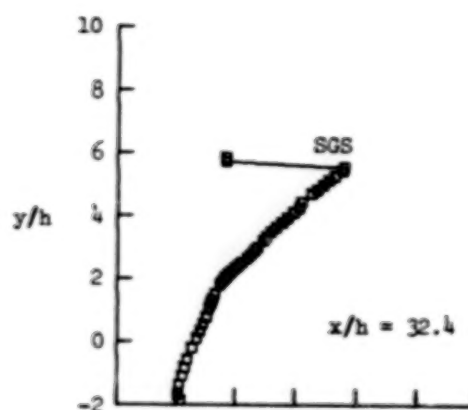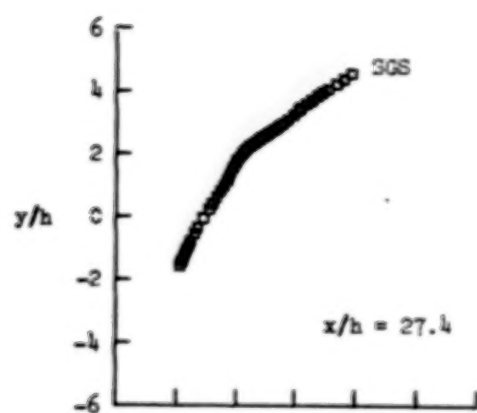
(b) Continued.

Figure 17.- Continued.
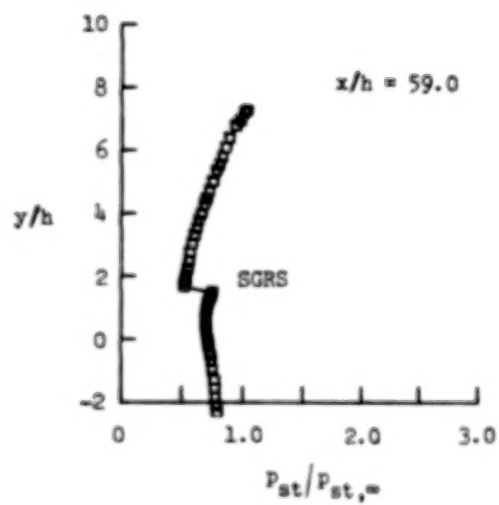
(b) Concluded.

Figure 17.- Continued.
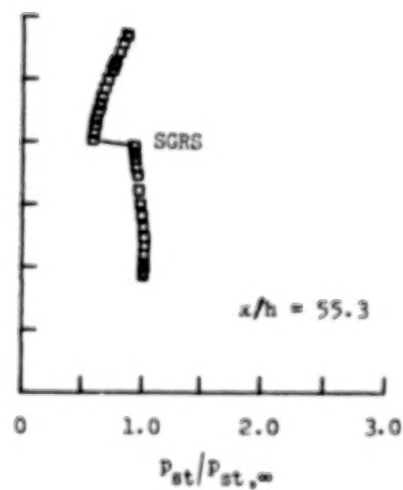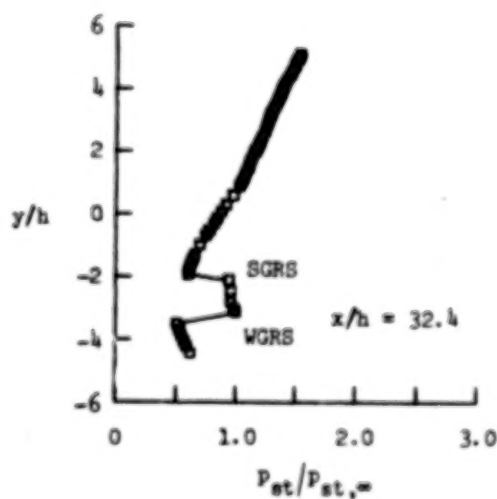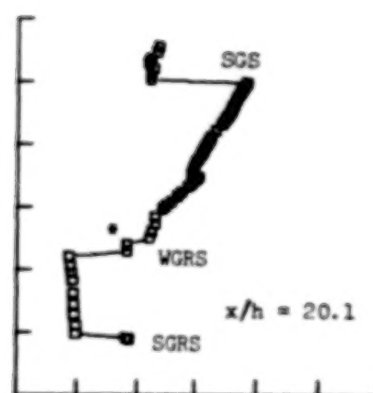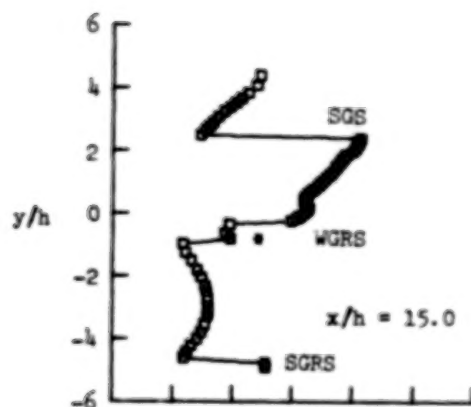
(c) 15° deflection.

Figure 17.- Continued.
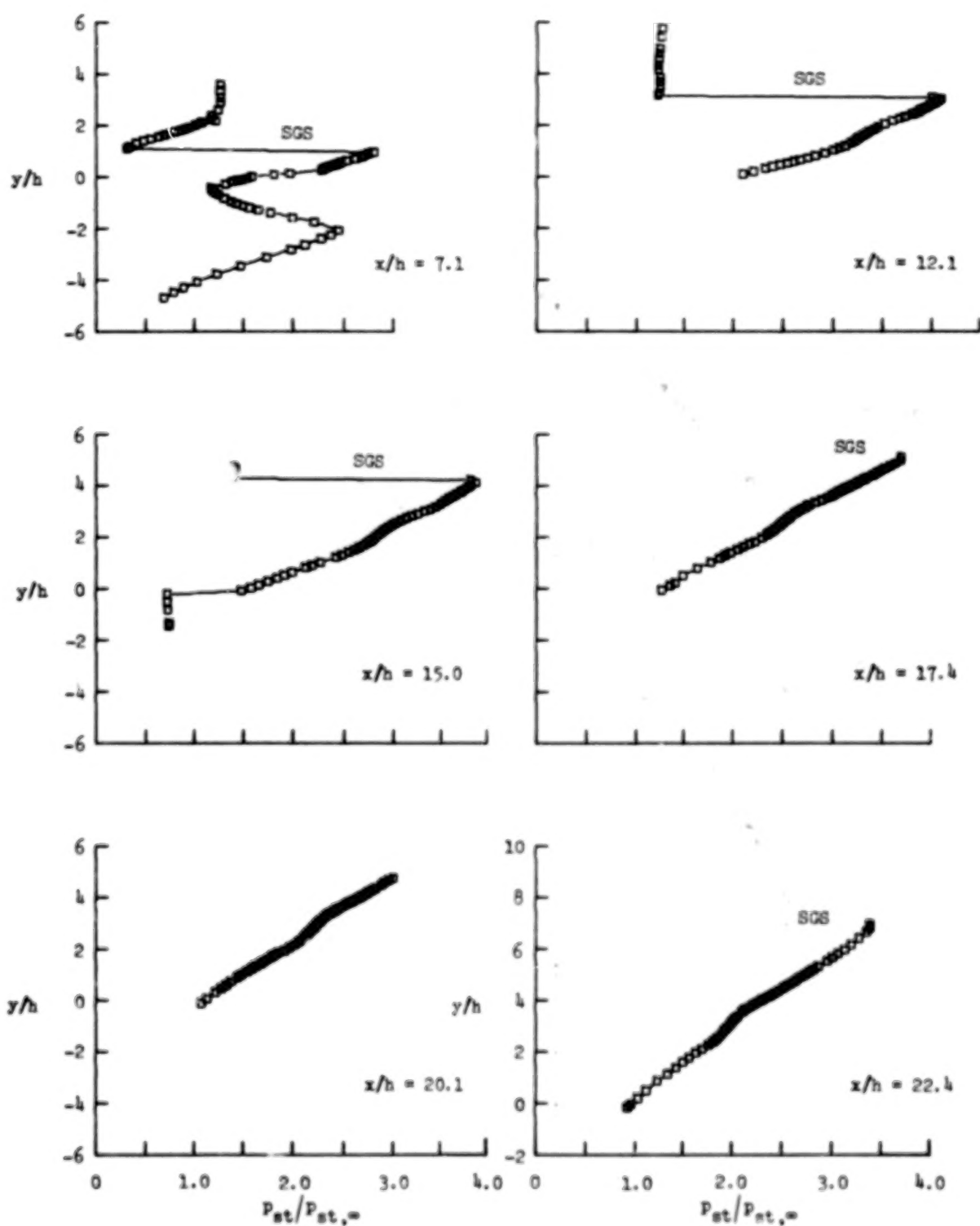
(d) $20°$ deflection.

Figure 17.- Continued.
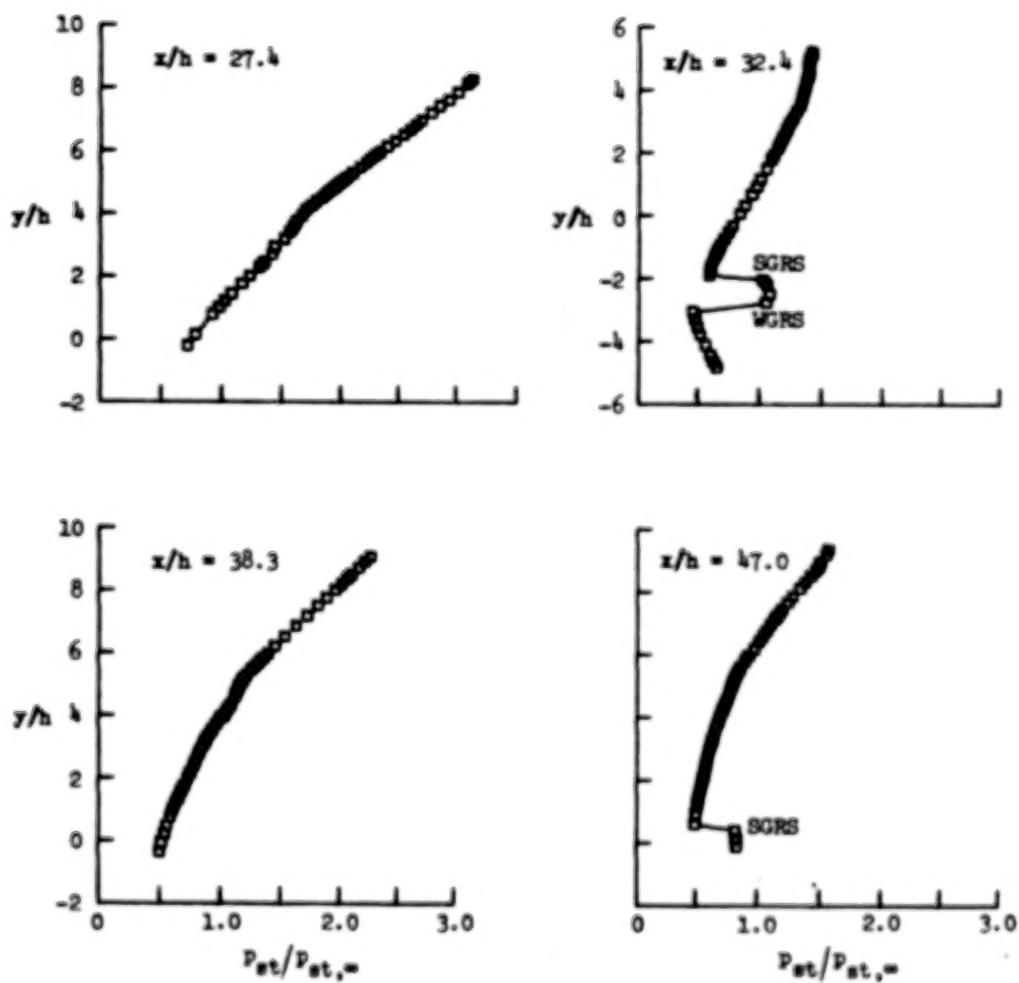
(d) Concluded.

Figure 17.- Concluded.
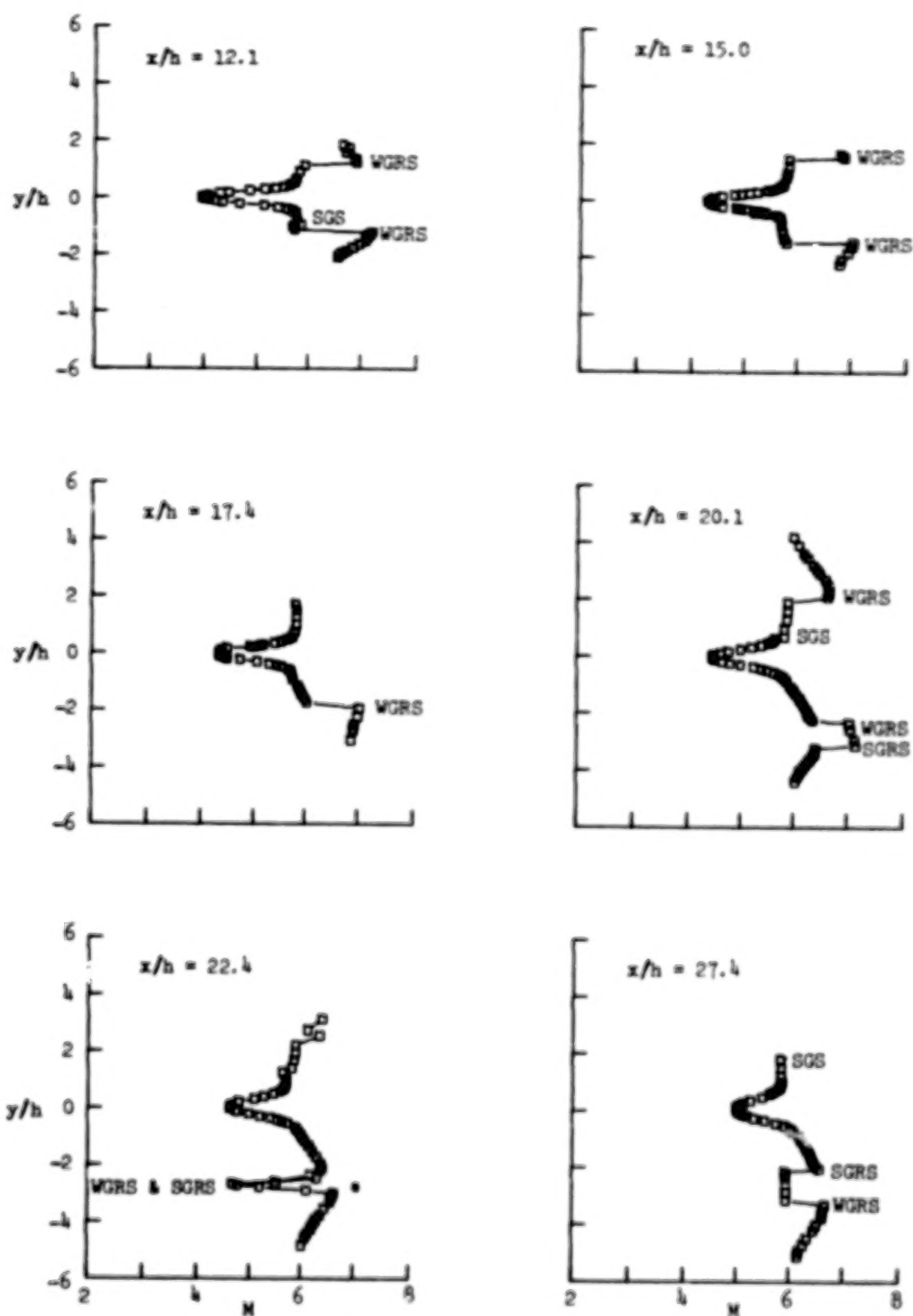
(a) 0° deflection.

Figure 18.- Mach number profiles for various shock-generator deflection angles.
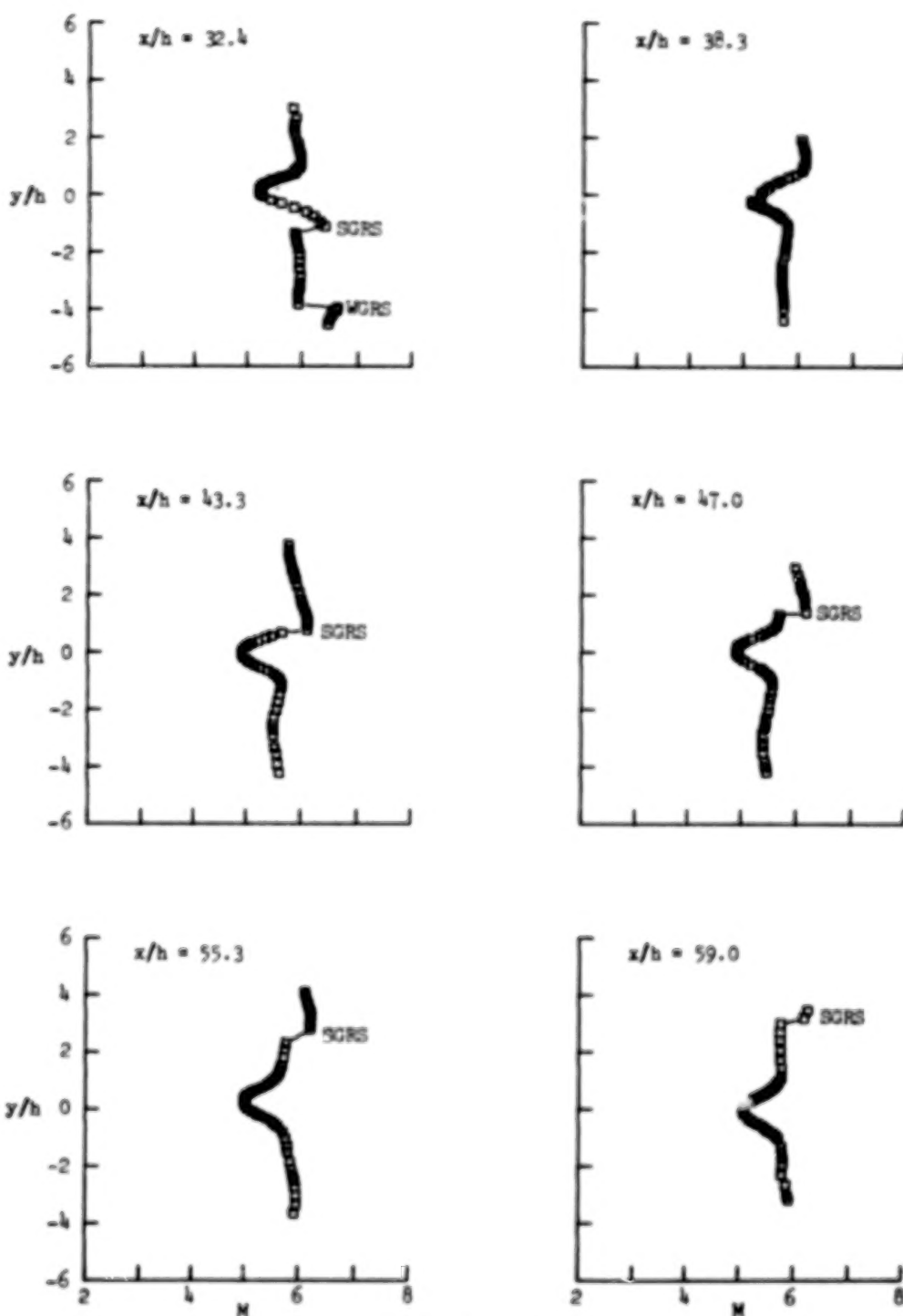
(a) Concluded.

Figure 18.- Continued.
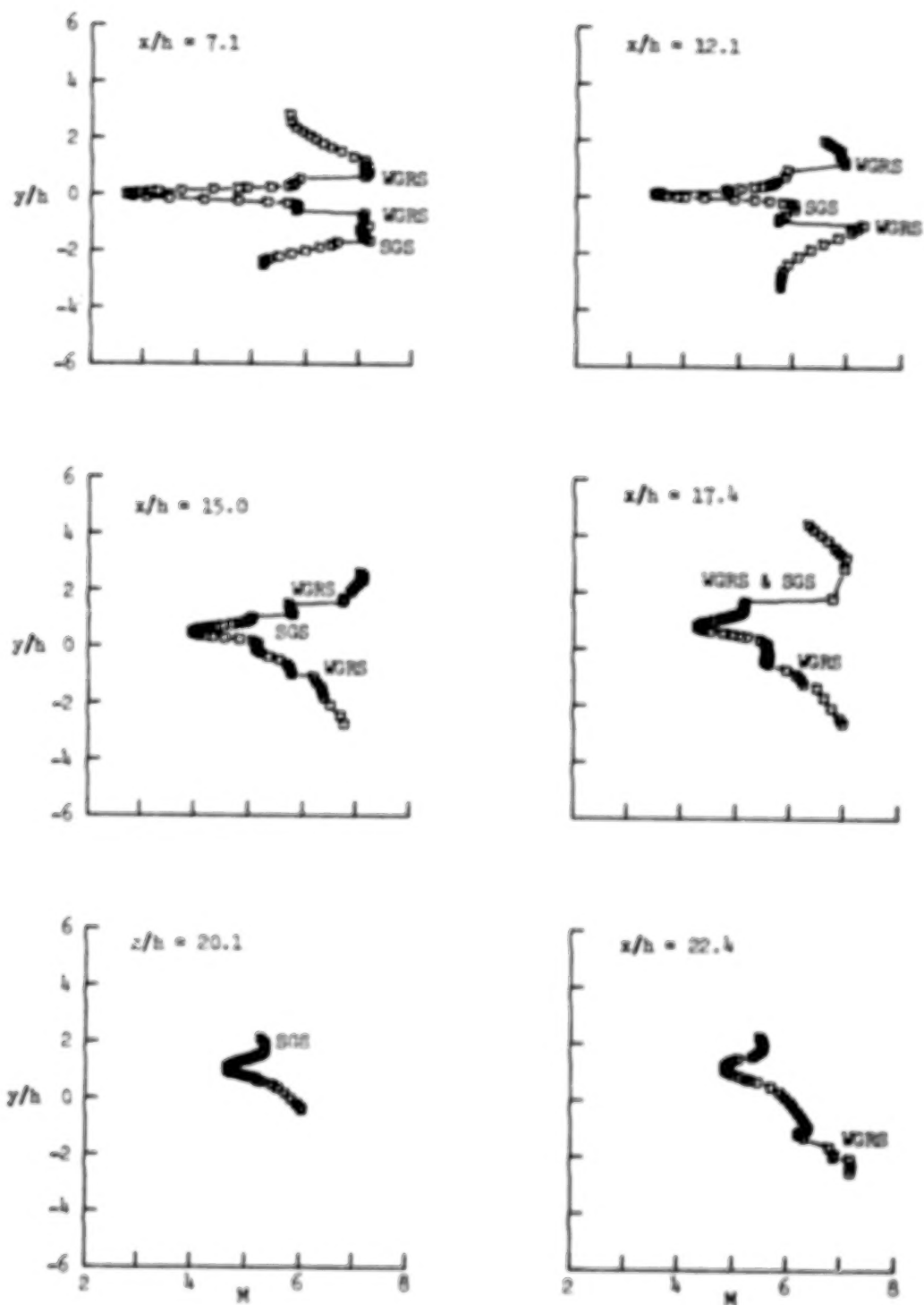
(b) 10° deflection.

Figure 18.- Continued.
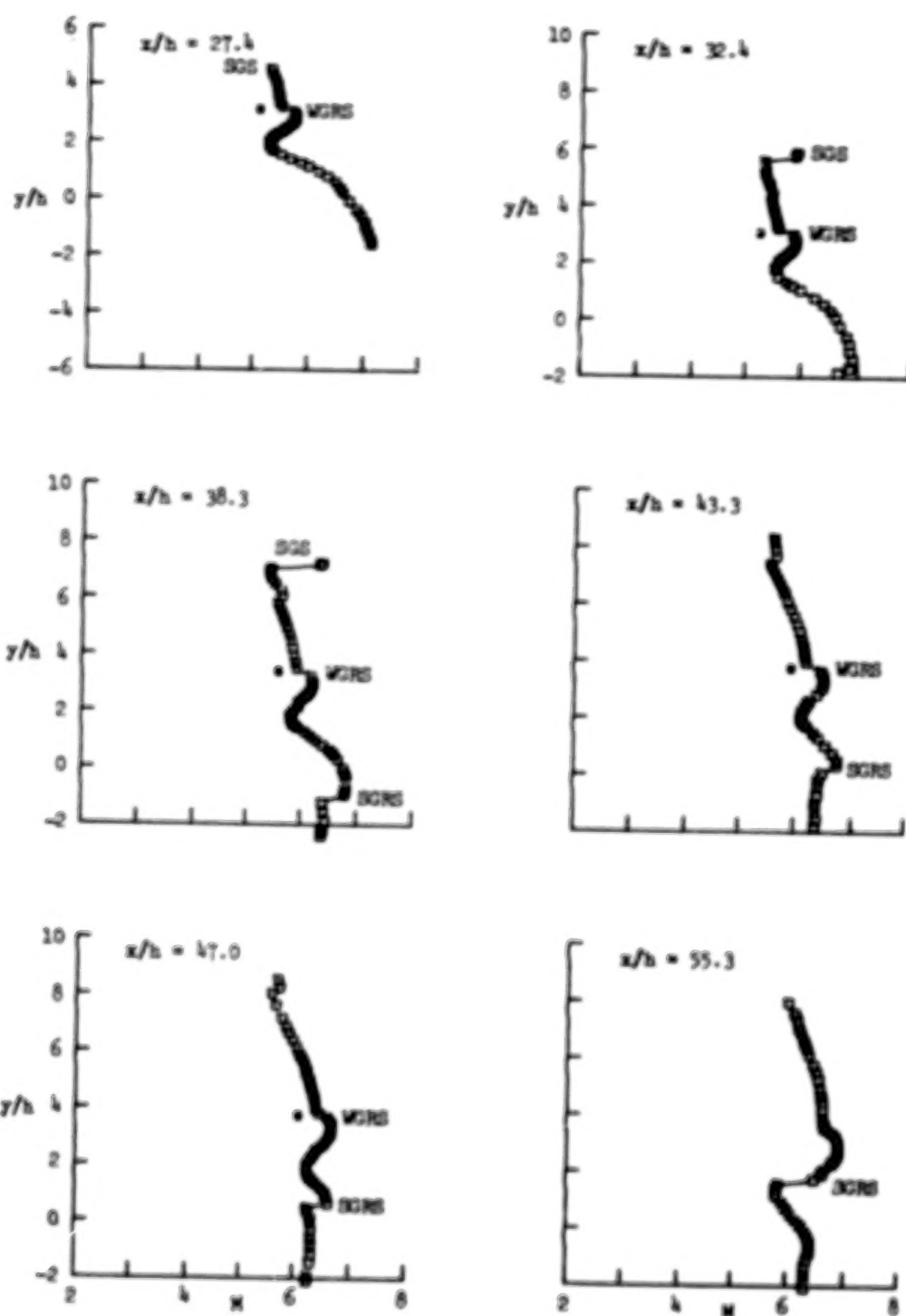
(b) Continued.

Figure 18.- Continued.

x/h = 59.0

SGRS
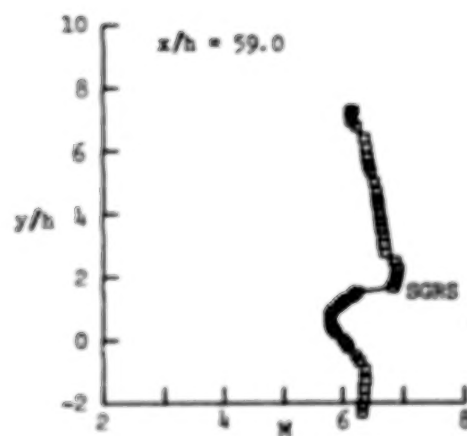
(b) Concluded.

Figure 18.- Continued.
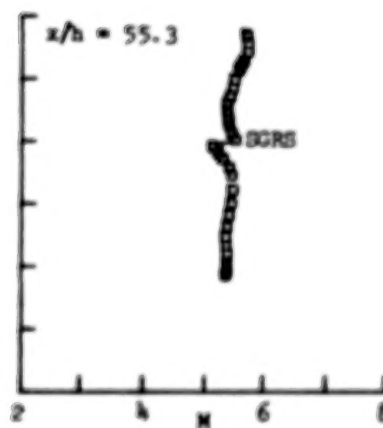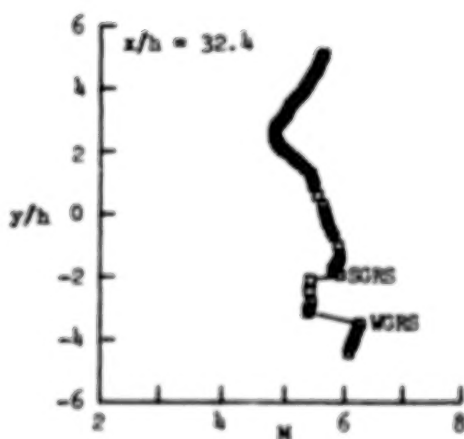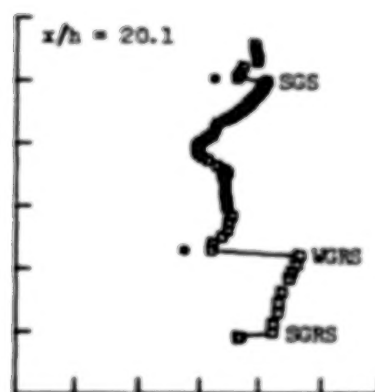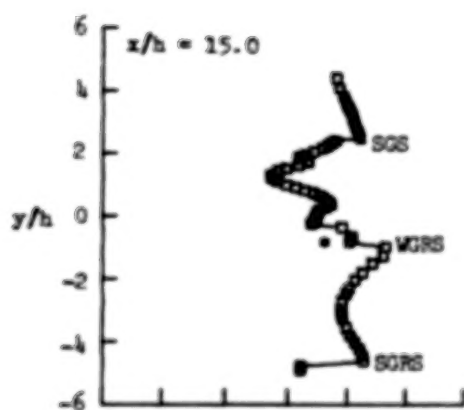
(c) 15° deflection.

Figure 18.- Continued.
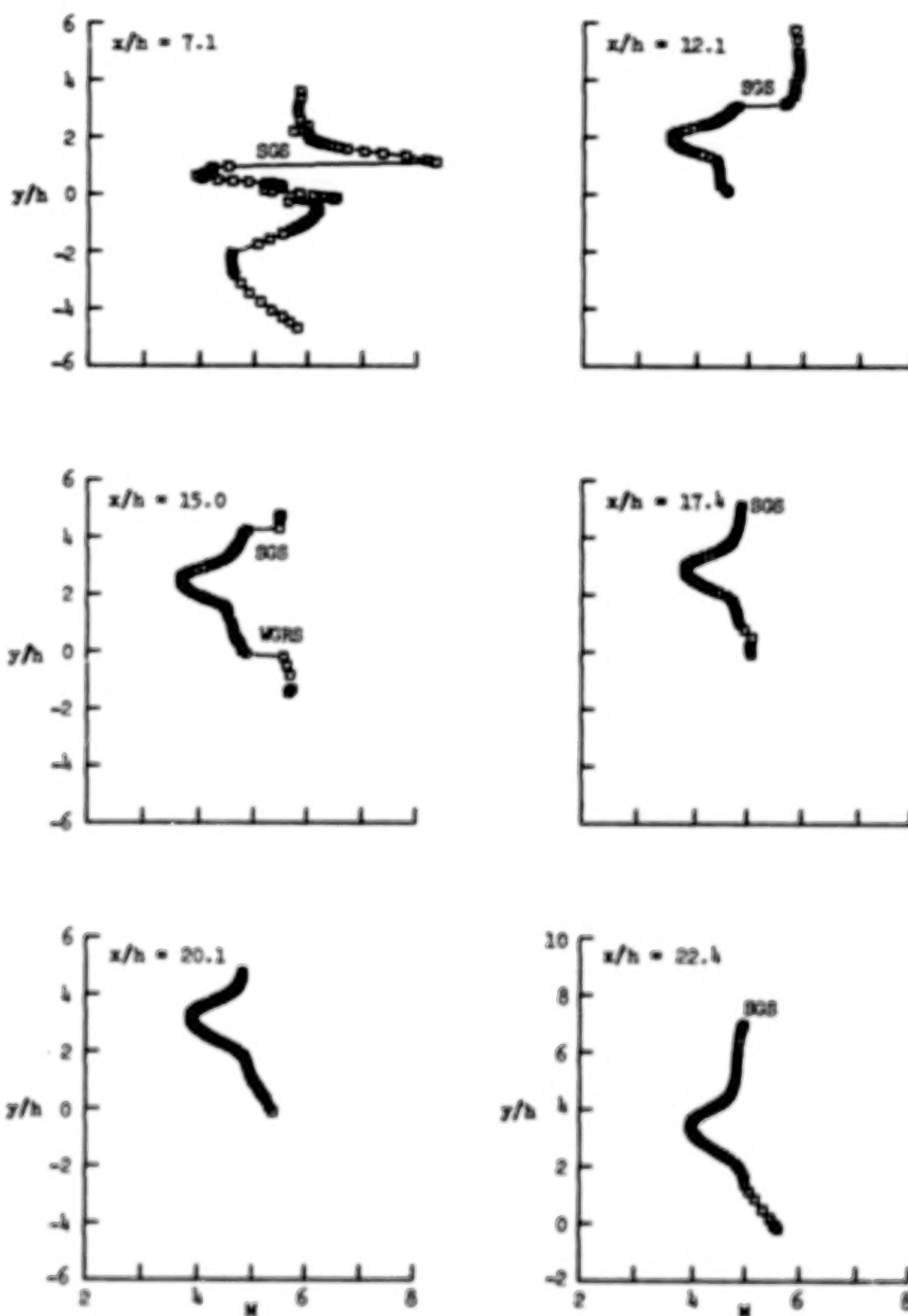
(d) 20° deflection.

Figure 18.- Continued.
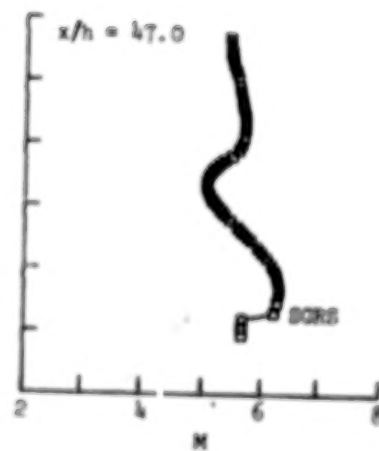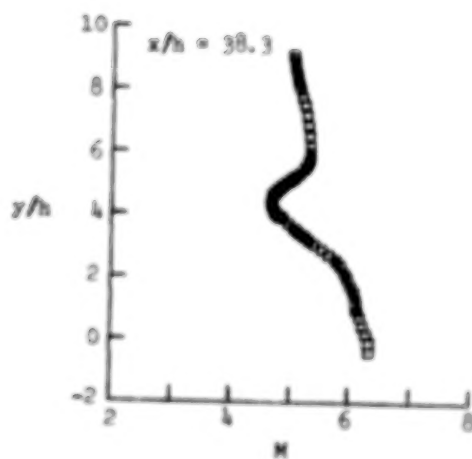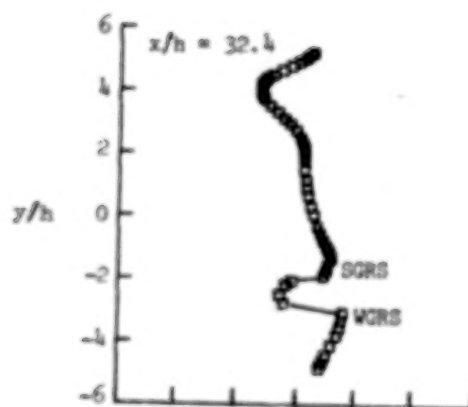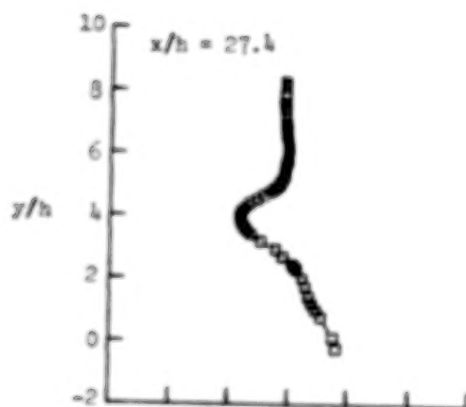
(d) Concluded.

Figure 18.- Concluded.
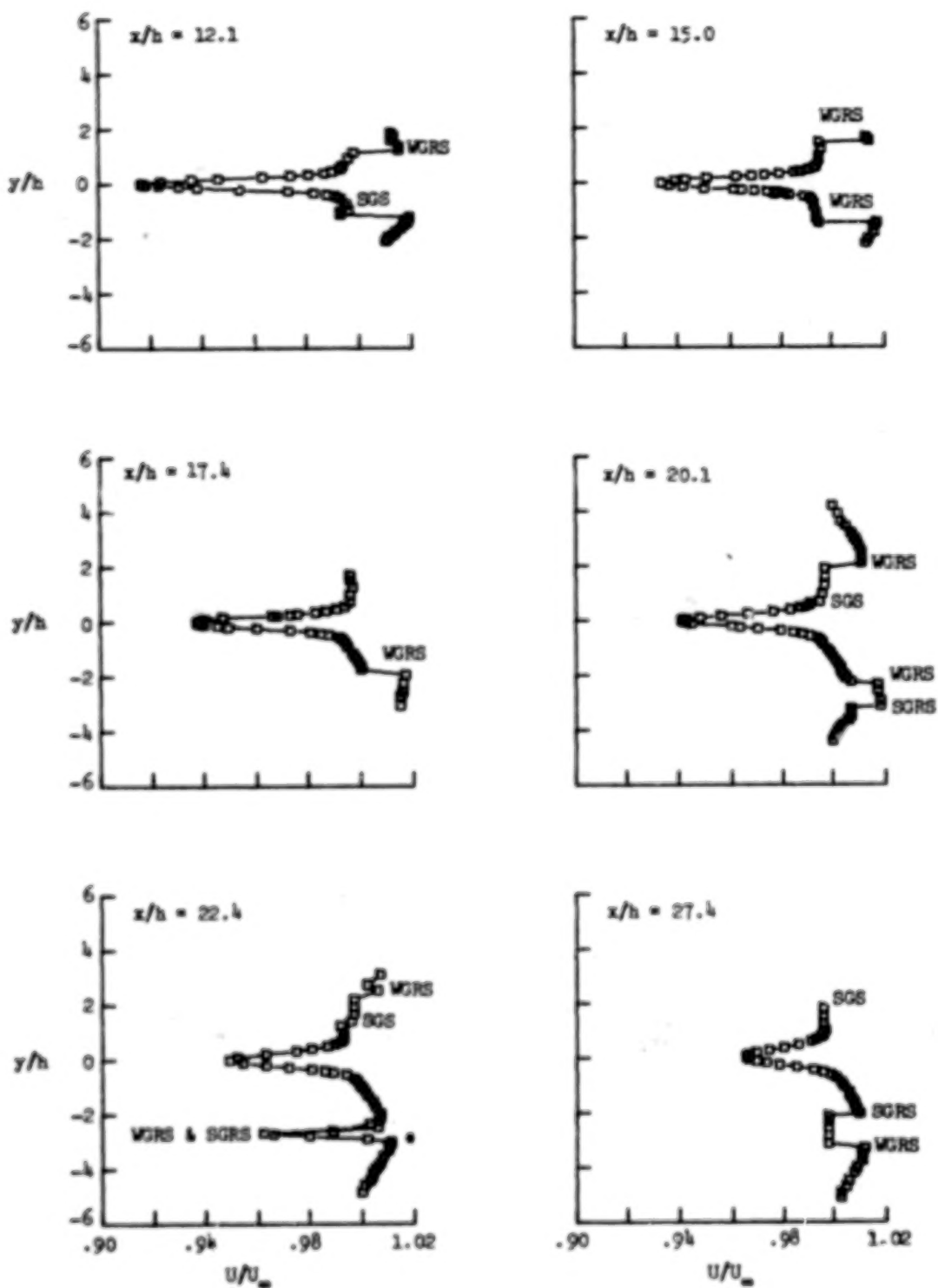
(a) 0° deflection.

Figure 19.- Velocity profiles for various shock-generator deflection angles.
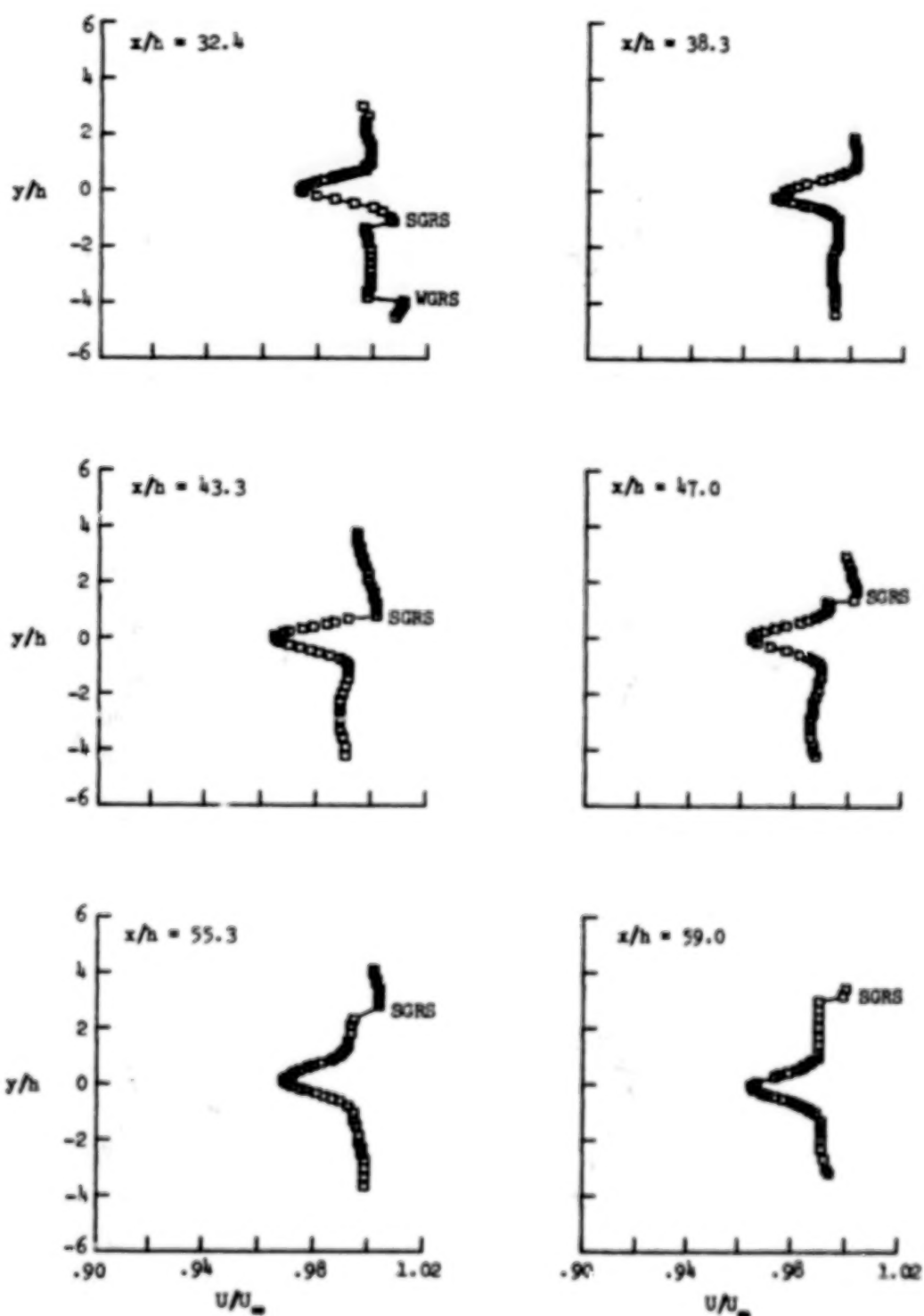
(a) Concluded.
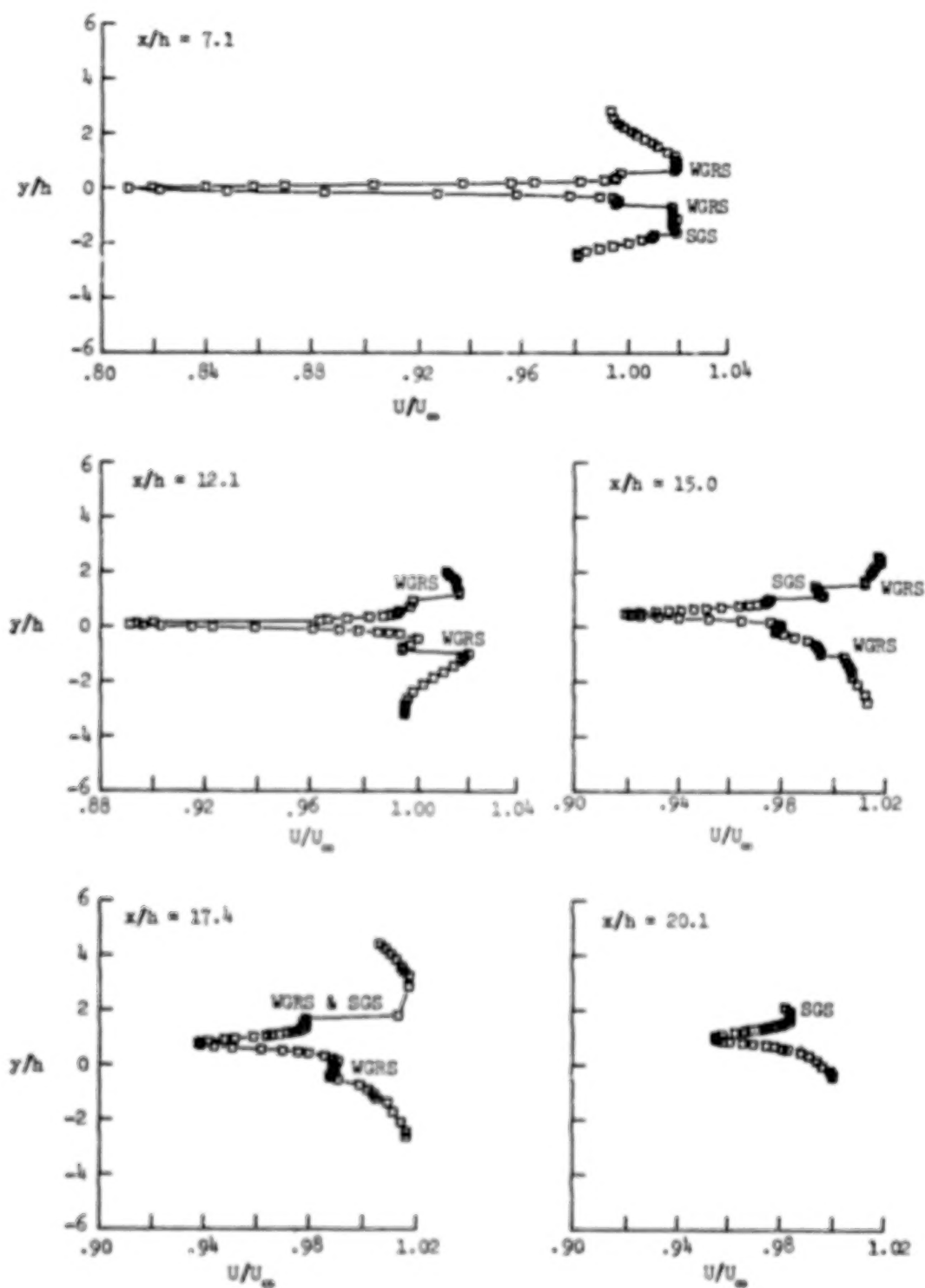
Figure 19.- Continued.

(b) 10° deflection.

Figure 19.- Continued.
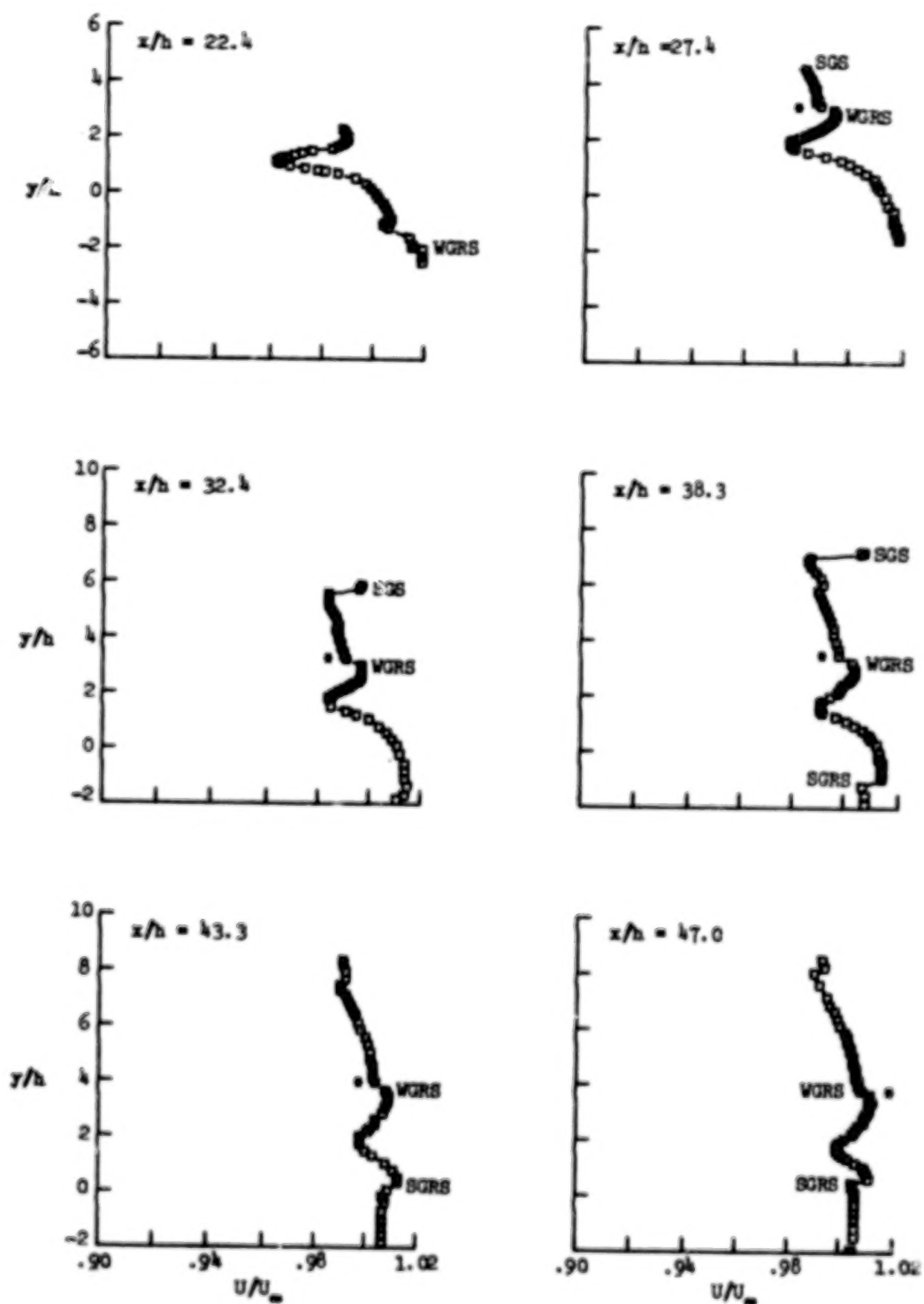
(b) Continued.

Figure 19.- Continued.
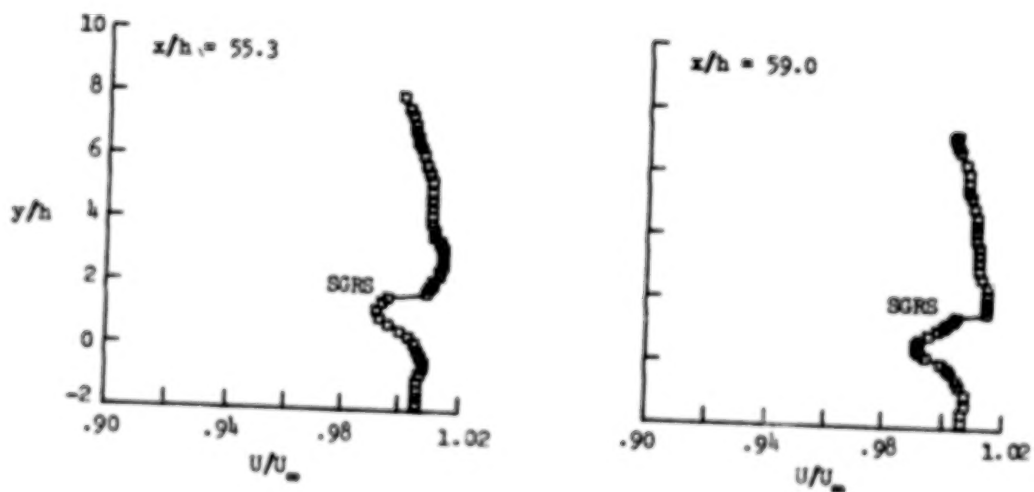
(b) Concluded.

Figure 19.- Continued.
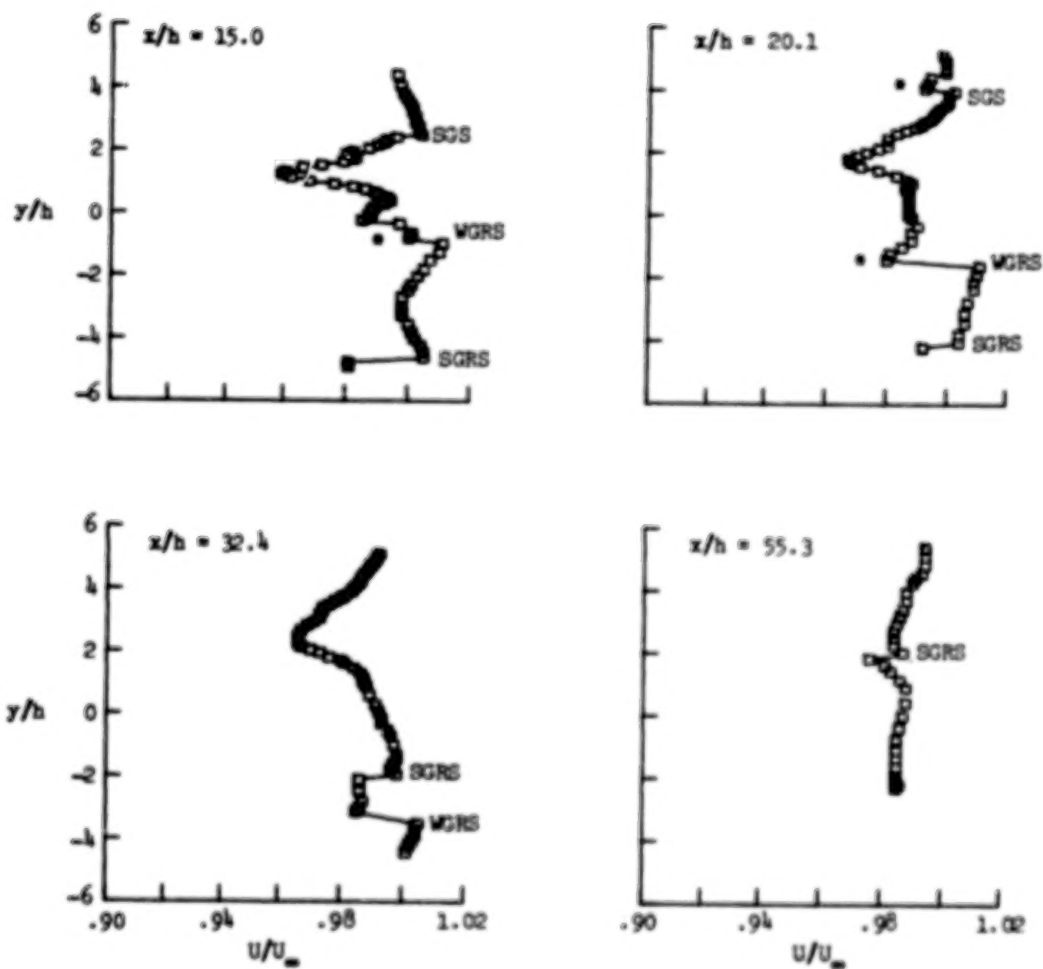
(c) 15° deflection.

Figure 19.- Continued.
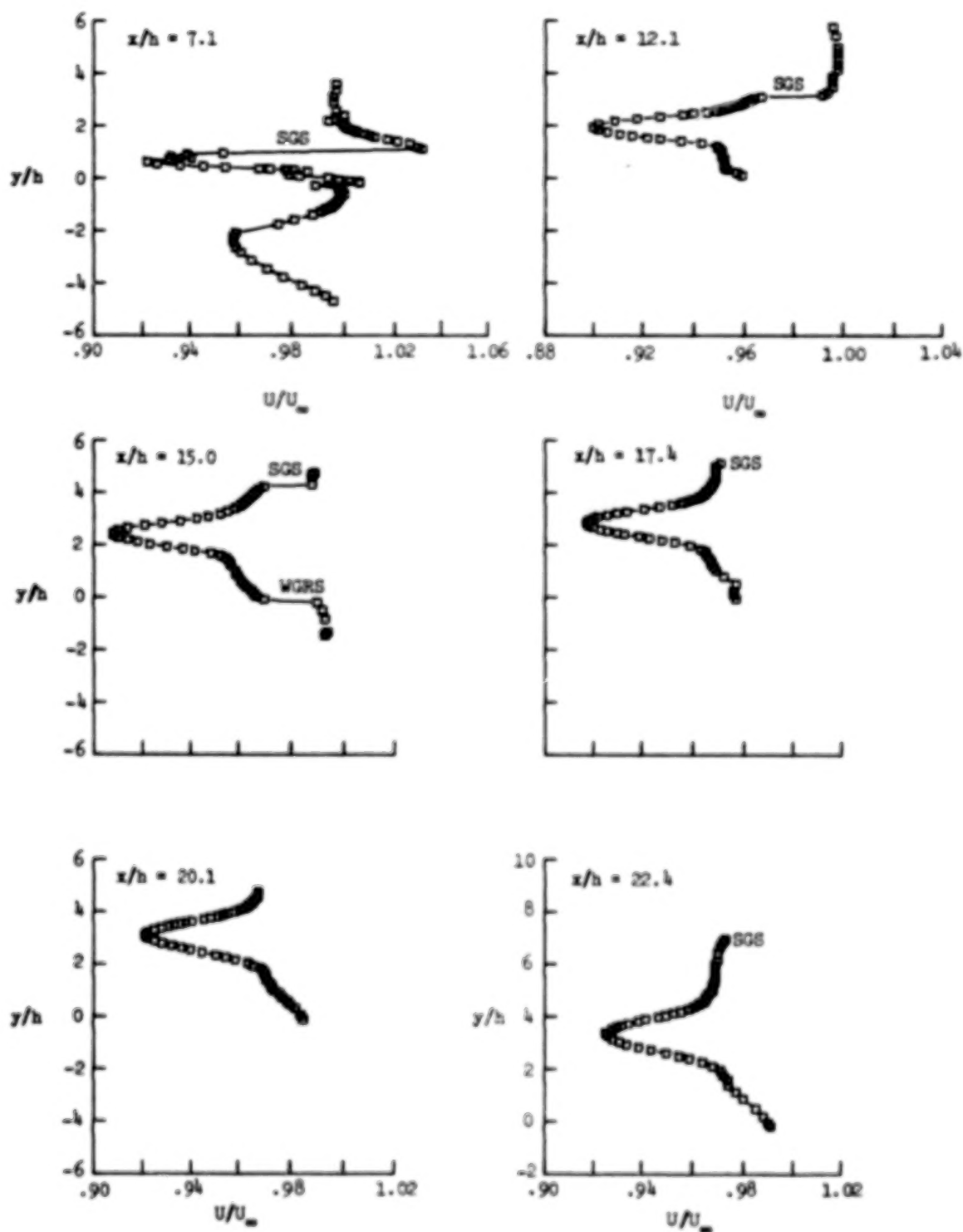
(d) 20° deflection.

Figure 19.- Continued.
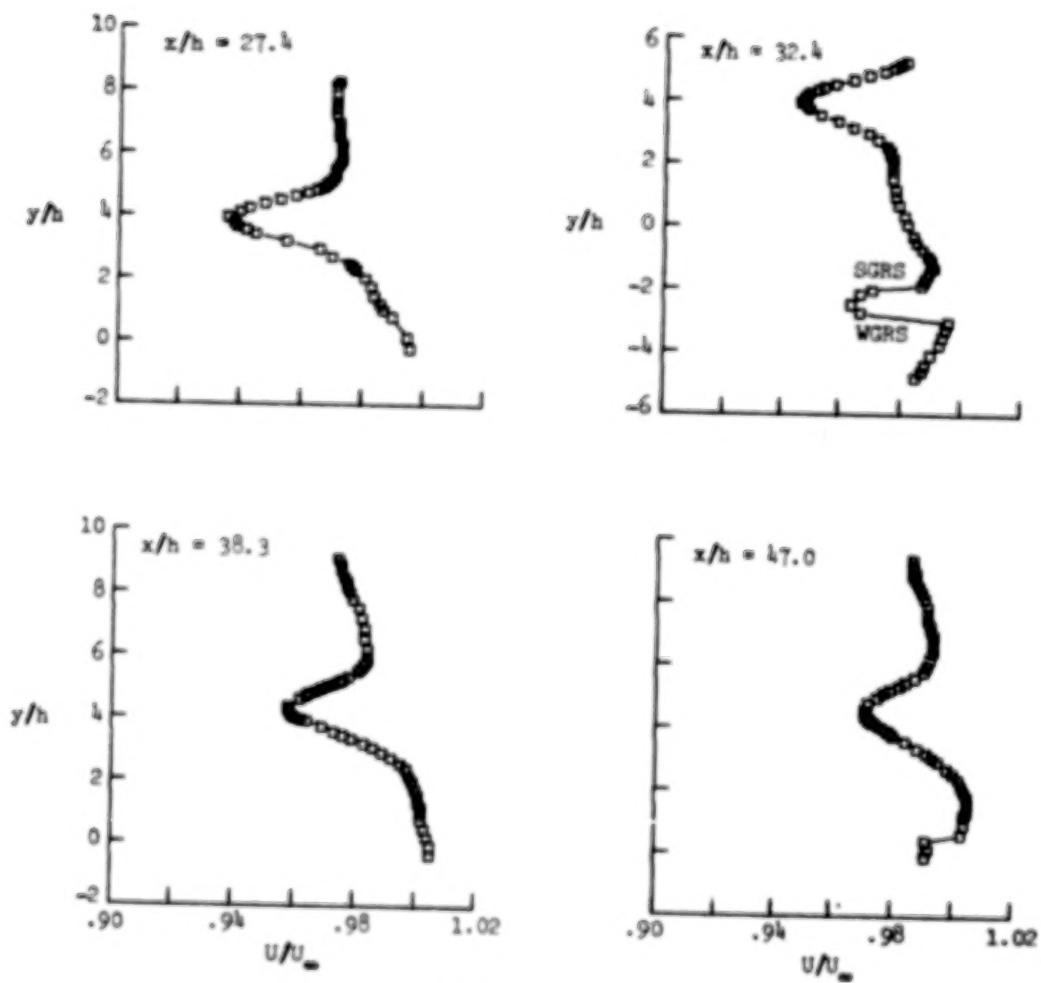
(d) Concluded.

Figure 19.- Concluded.

(a) No shock. (b) 0° deflection.
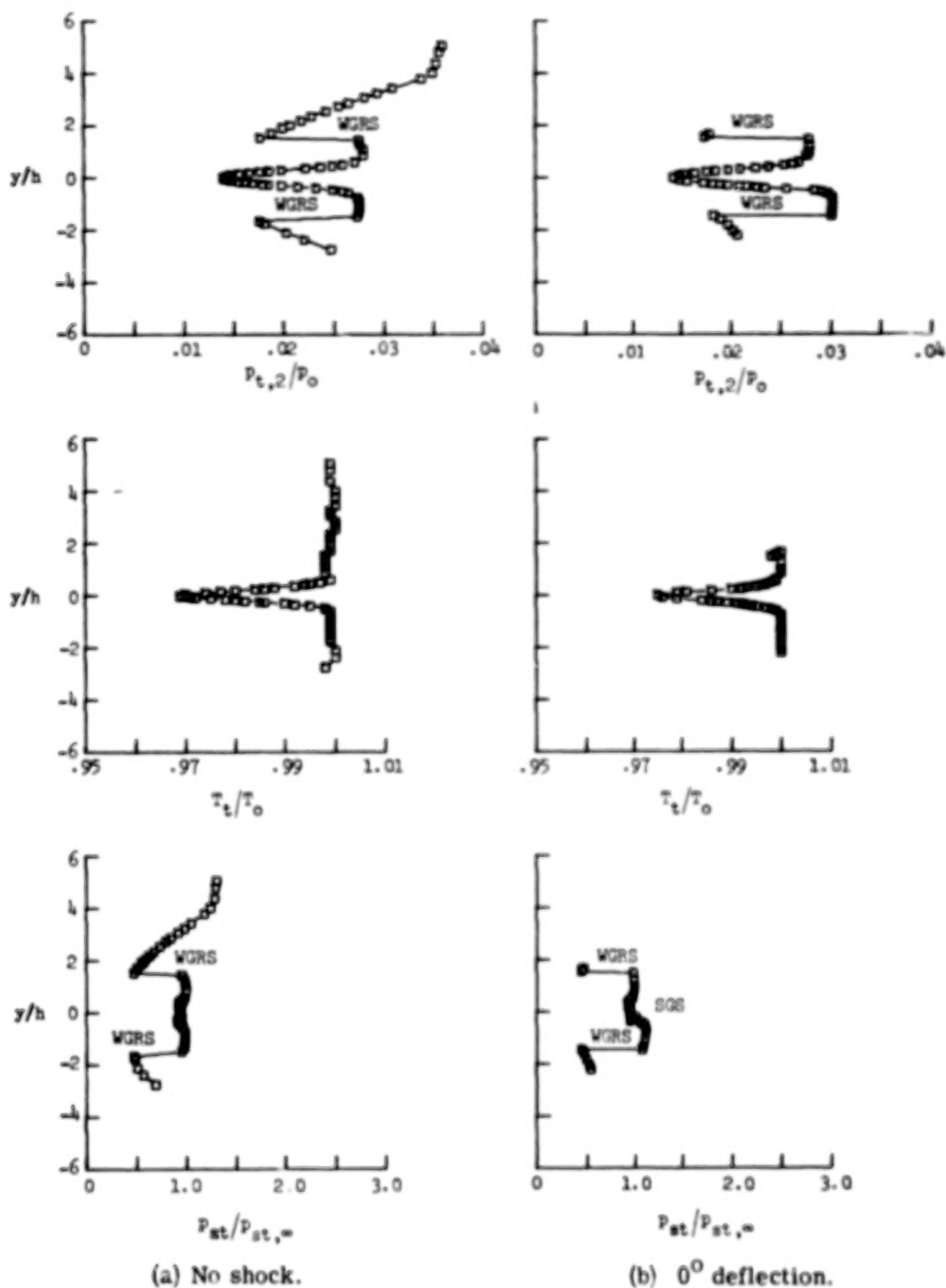
Figure 20.- Pitot-pressure, total-temperature, and static-pressure profiles for 0° shock-generator deflection angle compared with no-shock case at x/h = 15.0.

(a) No shock.
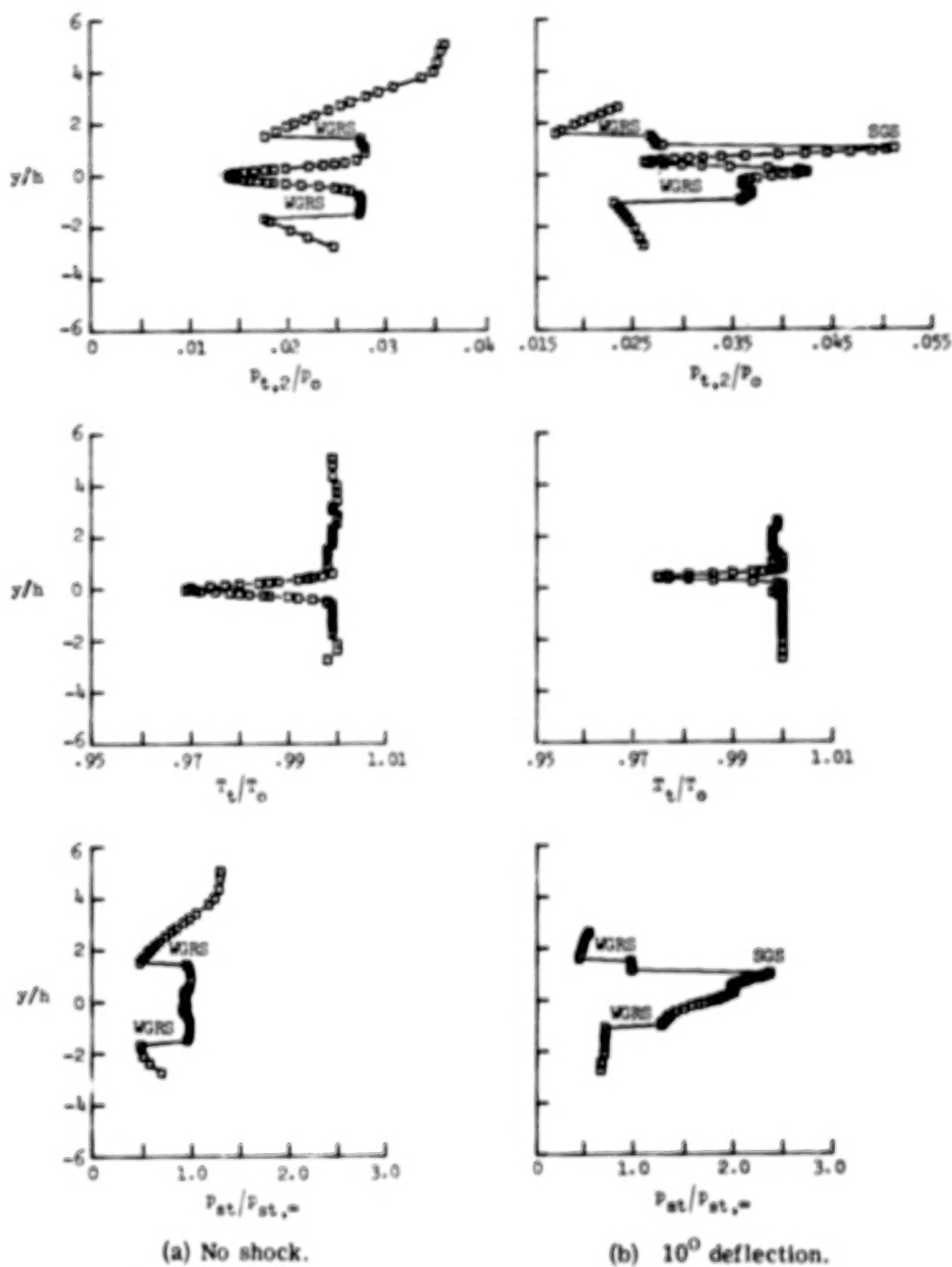
(b) 10° deflection.

Figure 21.- Pitot-pressure, total-temperature, and static-pressure profiles for 10° shock-generator deflection angle compared with no-shock case at $x/h = 15.0$.

(a) No shock.
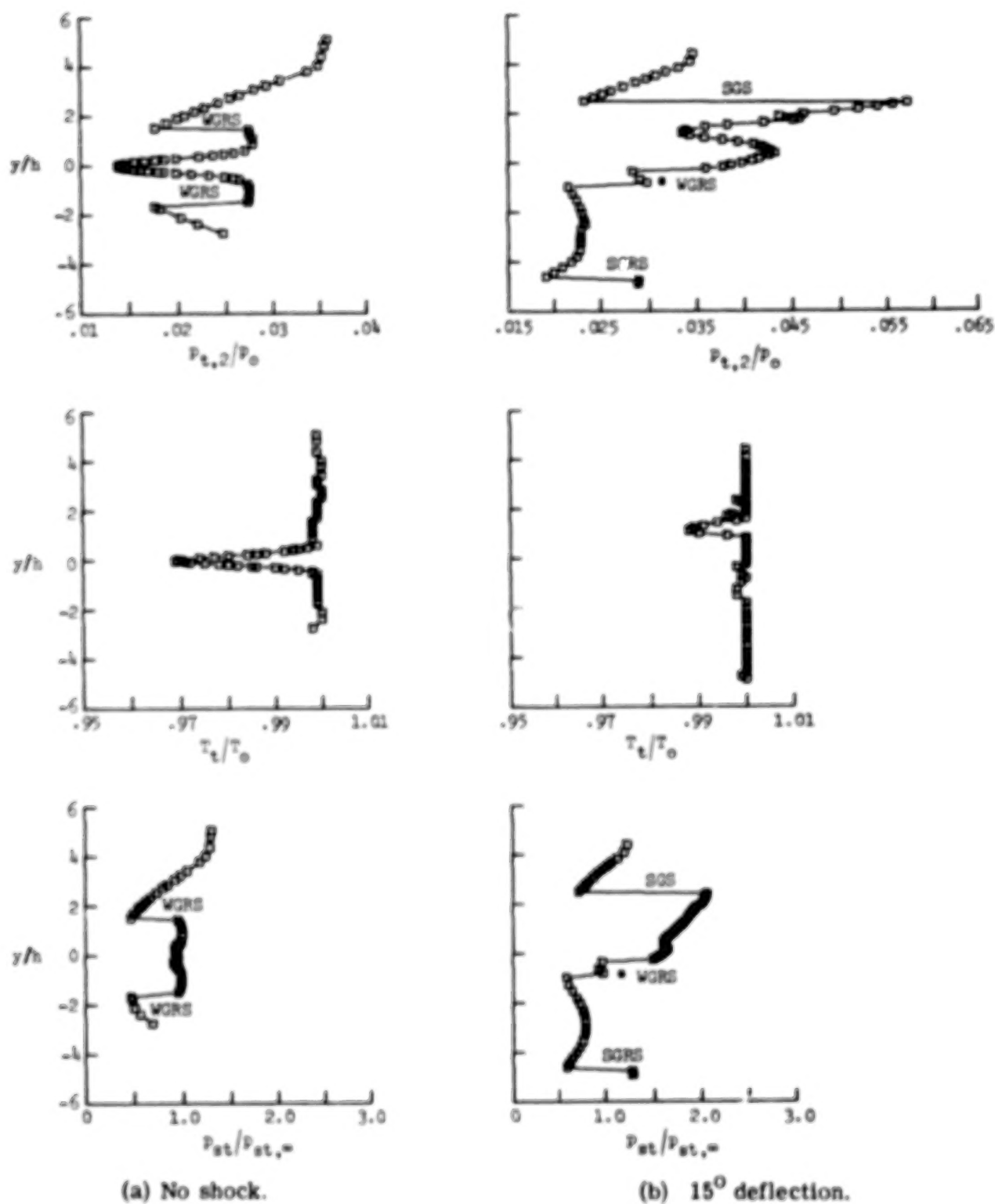
(b) 15° deflection.

Figure 22.- Pitot-pressure, total-temperature, and static-pressure profiles for 15° shock-generator deflection angle compared with no-shock case at x/h = 15.0.
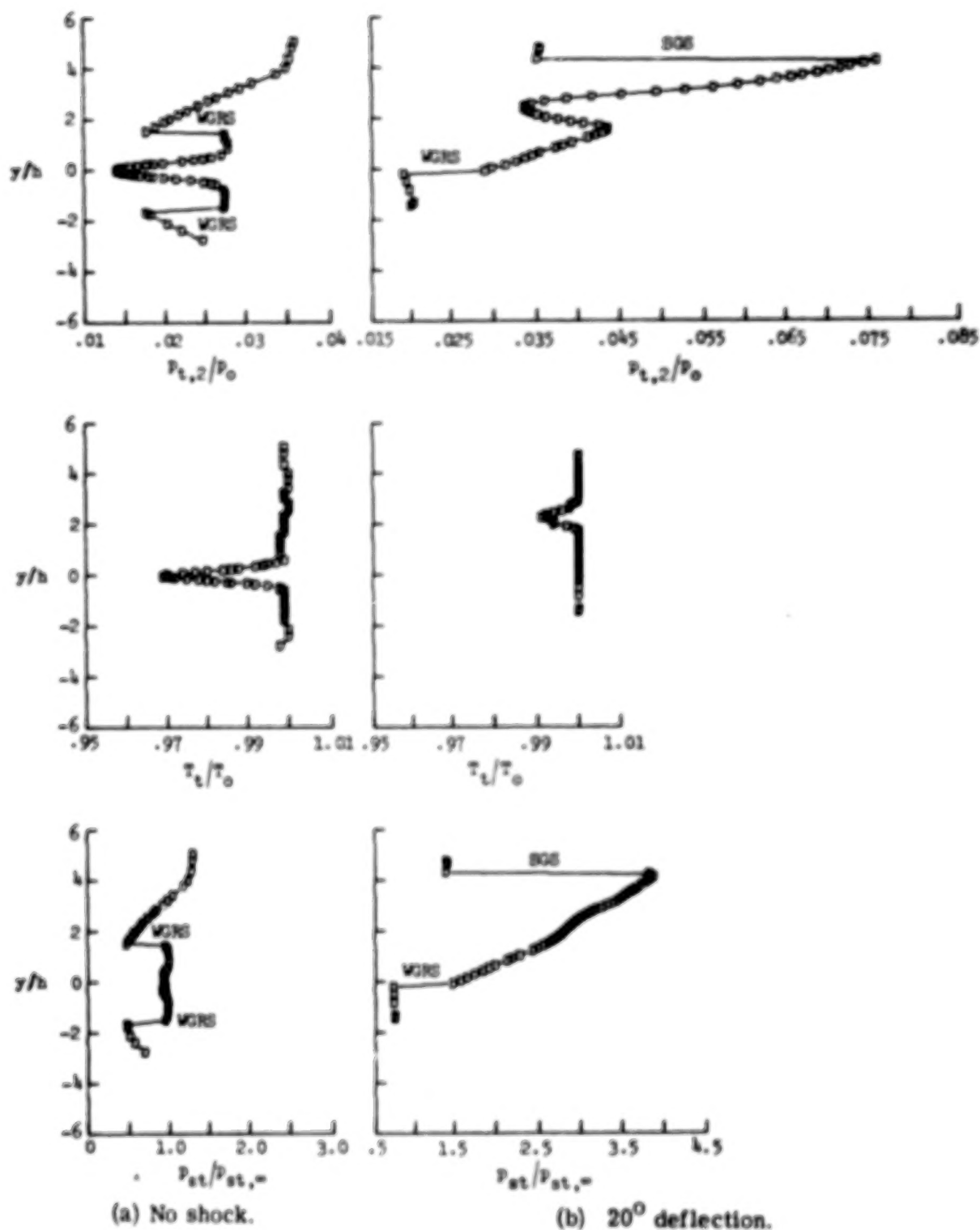
Figure 23.- Pitot-pressure, total-temperature, and static-pressure profiles for 20° shock-generator deflection angle compared with no-shock case at x/h = 15.0.

(a) No shock.   (b) 20° deflection.

(a) No shock.   (b) 0° deflection.
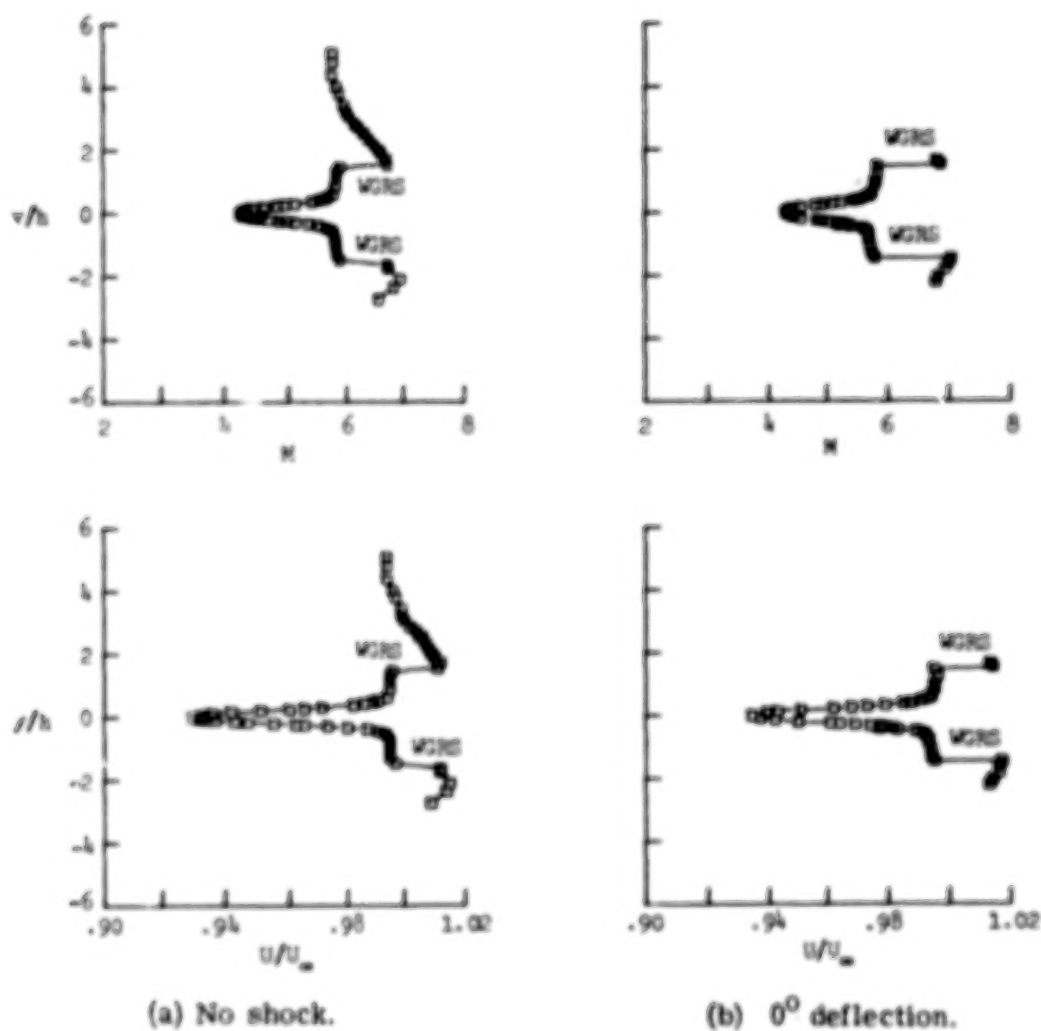
Figure 24.- Mach number and velocity profiles for 0° shock-generator deflection angle compared with no-shock case at $x/h = 15.0$.

(a) No shock.

(b) 10° deflection.

Figure 25.- Mach number and velocity profiles for 10° shock-generator deflection angle compared with no-shock case at x/h = 15.0.

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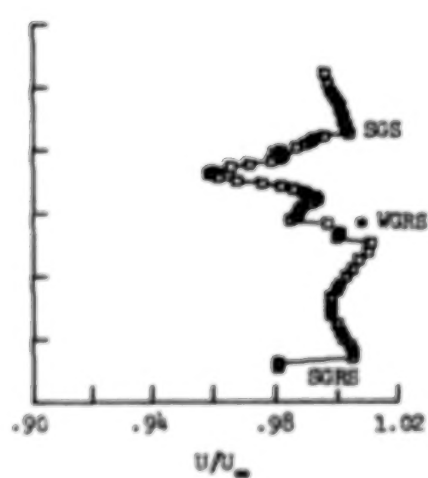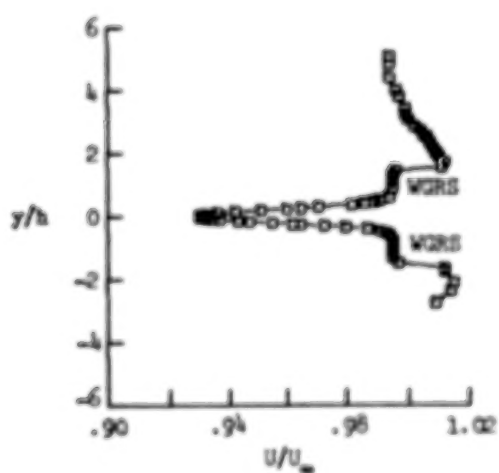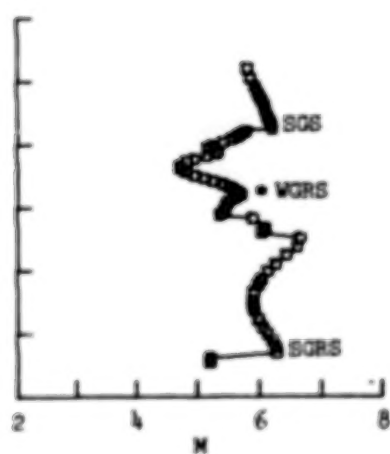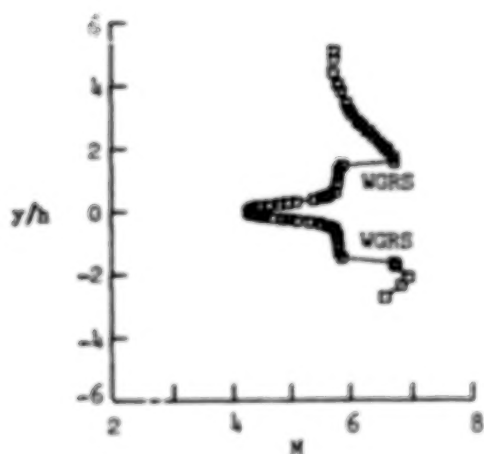
(a) No shock.

(b) 15° deflection.

Figure 26.- Mach number and velocity profiles for 15° shock-generator deflection angle compared with no-shock case at x/h = 15.0.
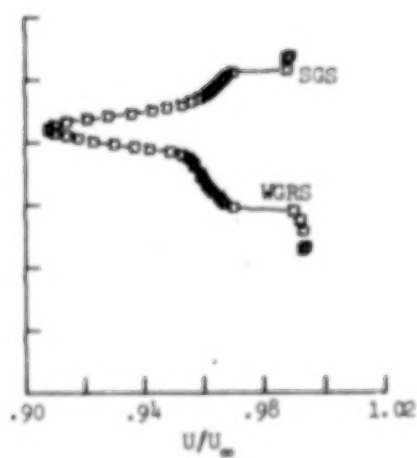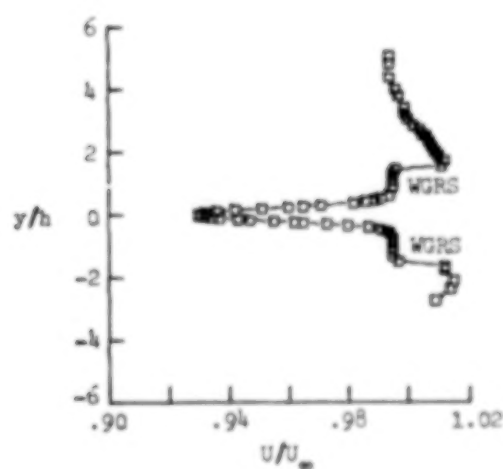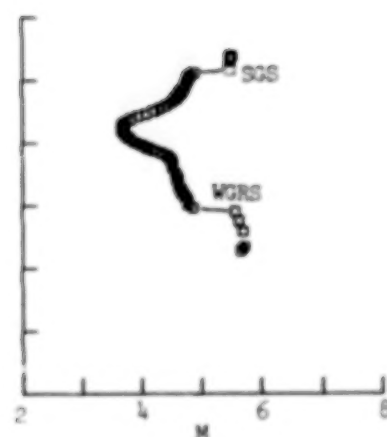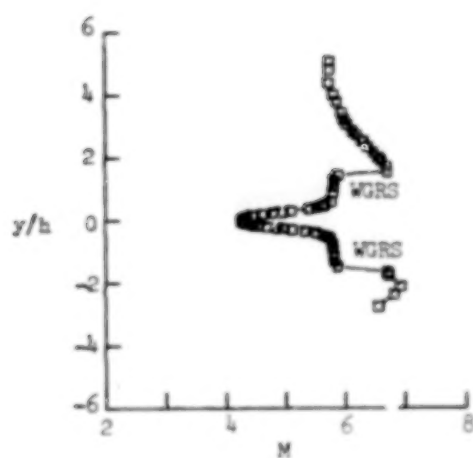
(a) No shock.

(b) 20° deflection.

Figure 27.- Mach number and velocity profiles for 20° shock-generator deflection angle compared with no-shock case at x/h = 15.0.
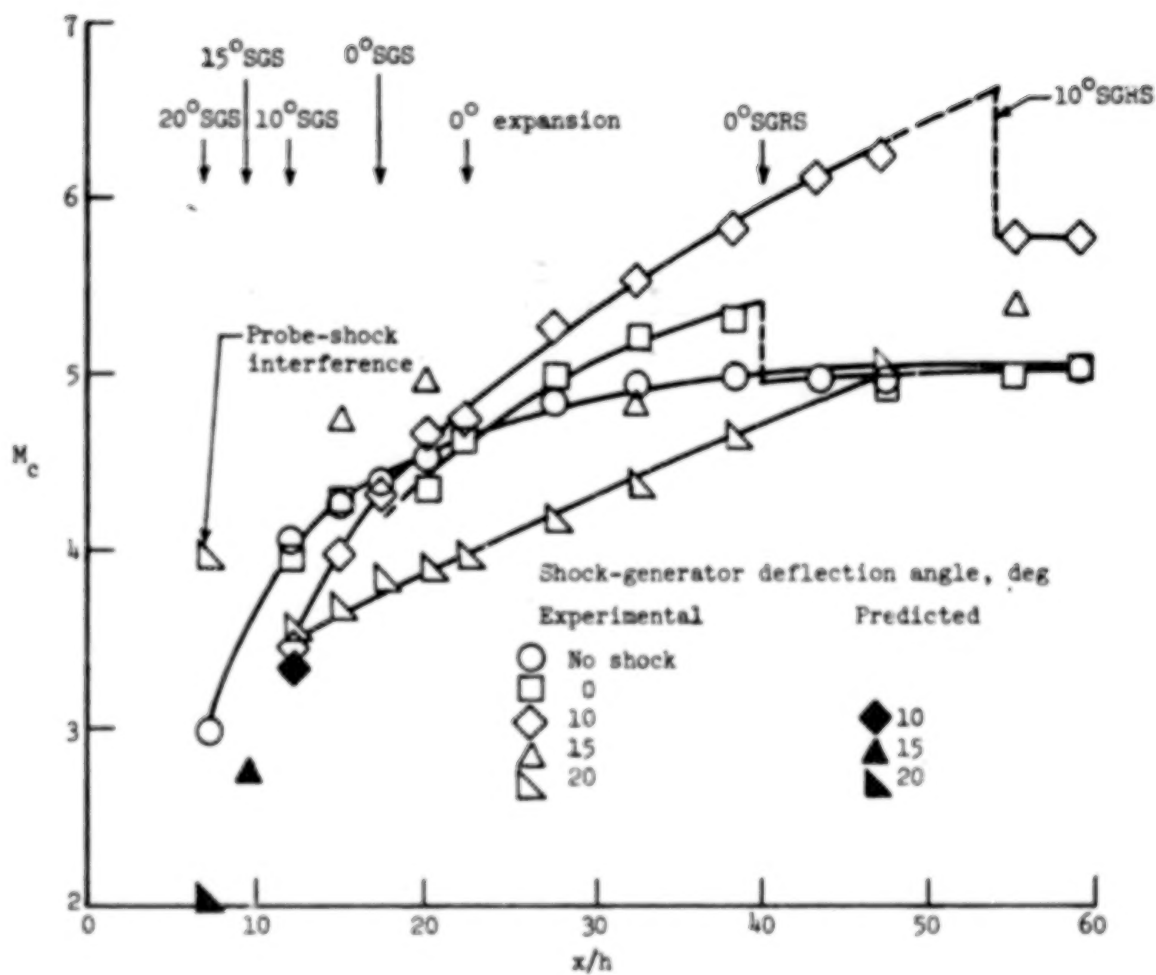
Figure 28.- Wake center-line Mach number distribution.
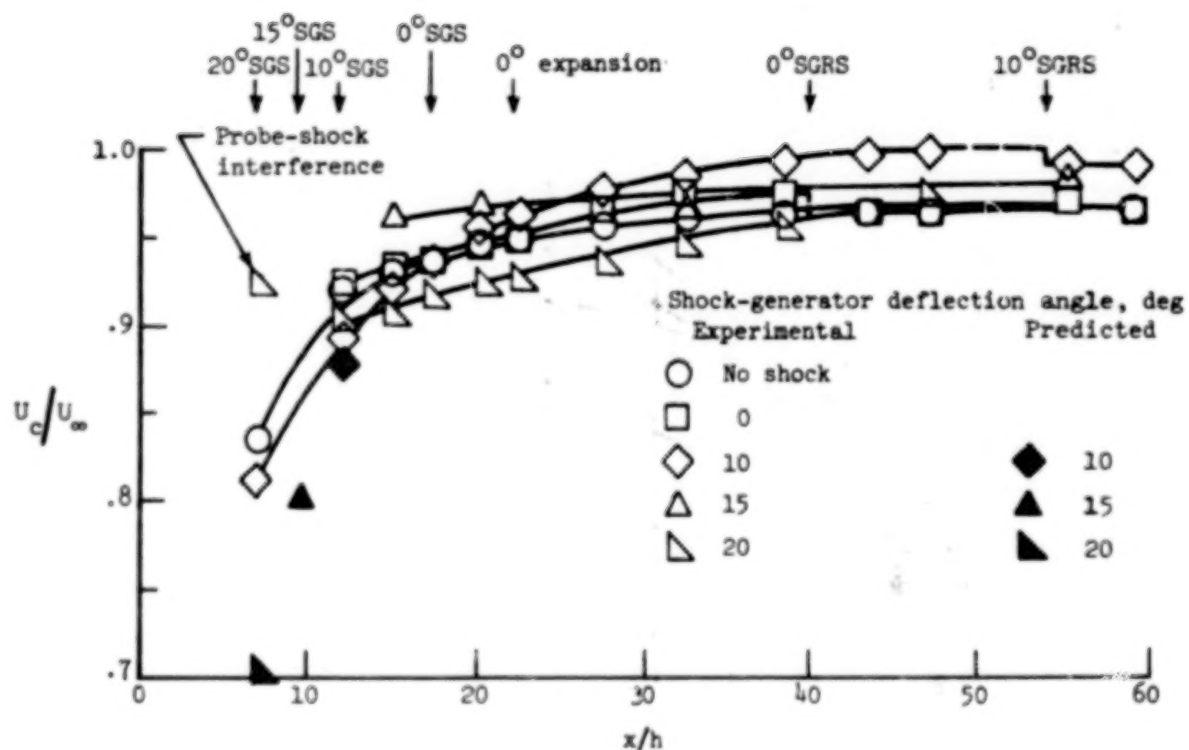
Figure 29.- Wake center-line velocity distribution.
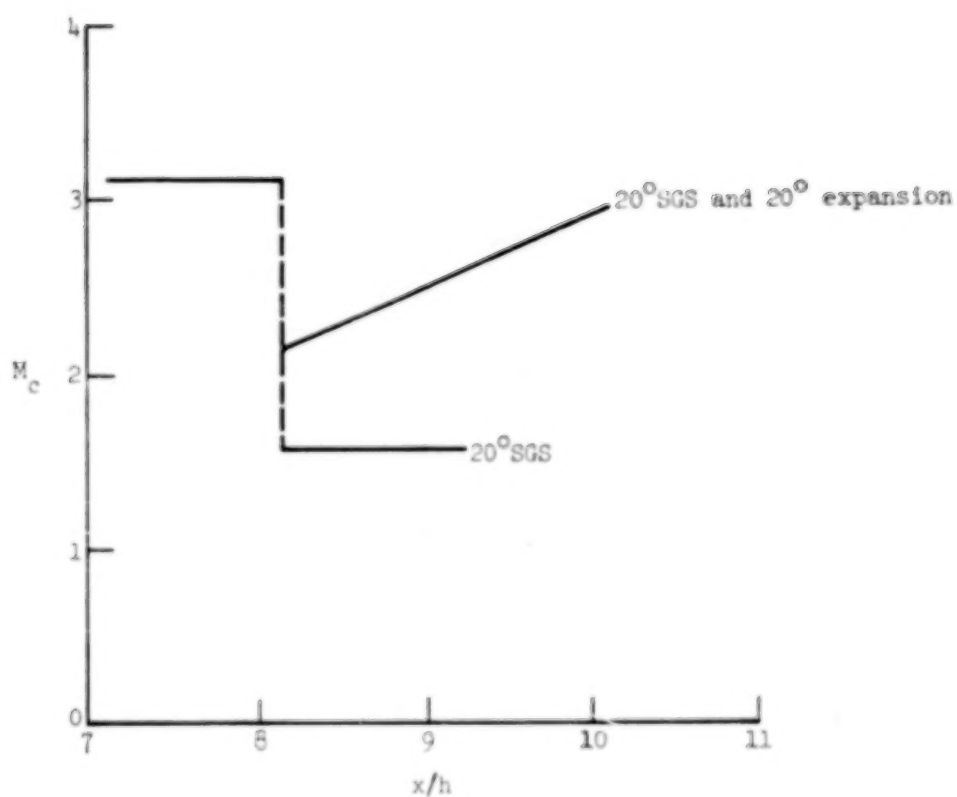
Figure 30.- Wake center-line Mach number distribution downstream of
shock and expansion wave interactions predicted by inviscid calcula-
tion method of Salas (ref. 41).

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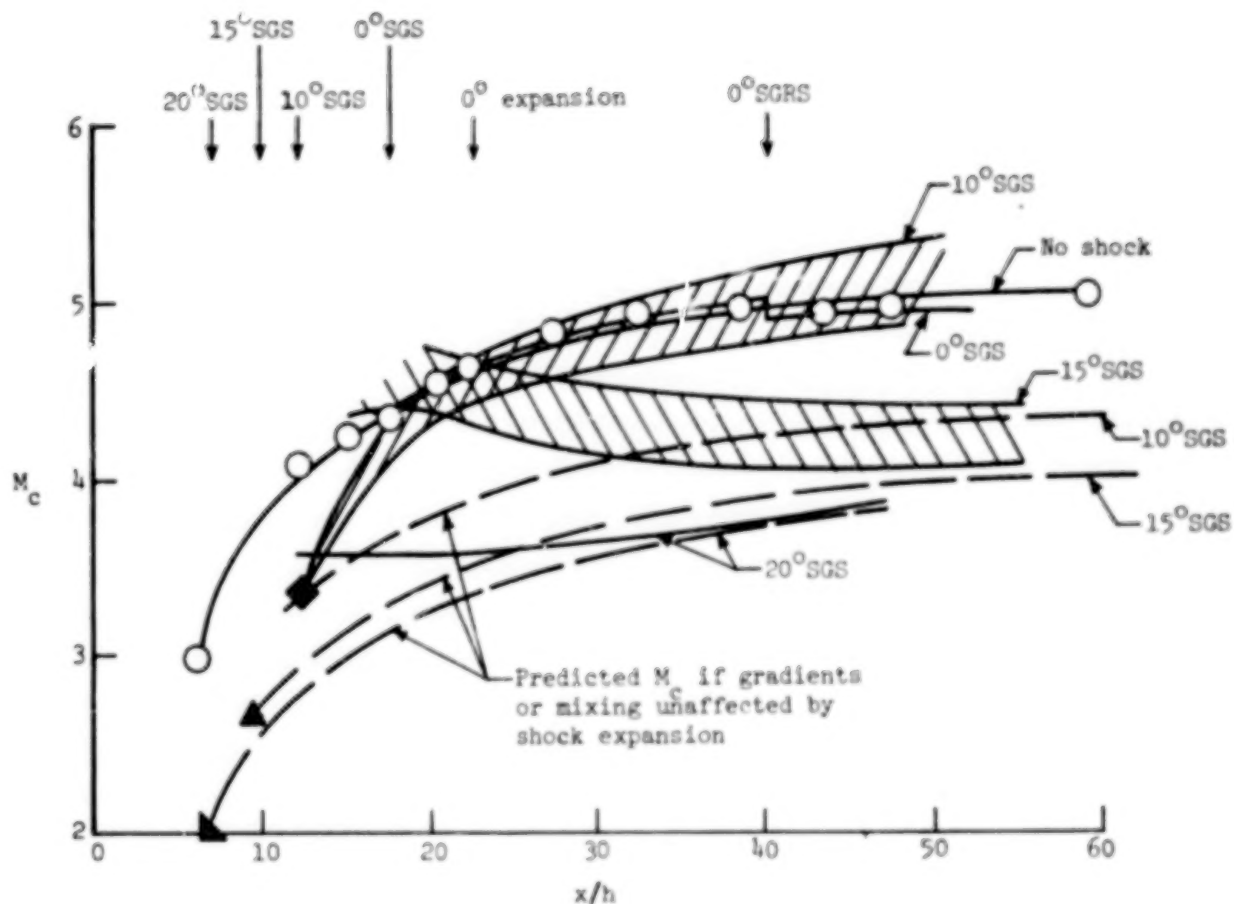
Figure 31.- Wake center-line Mach number distribution minus inviscid effects of expansion.
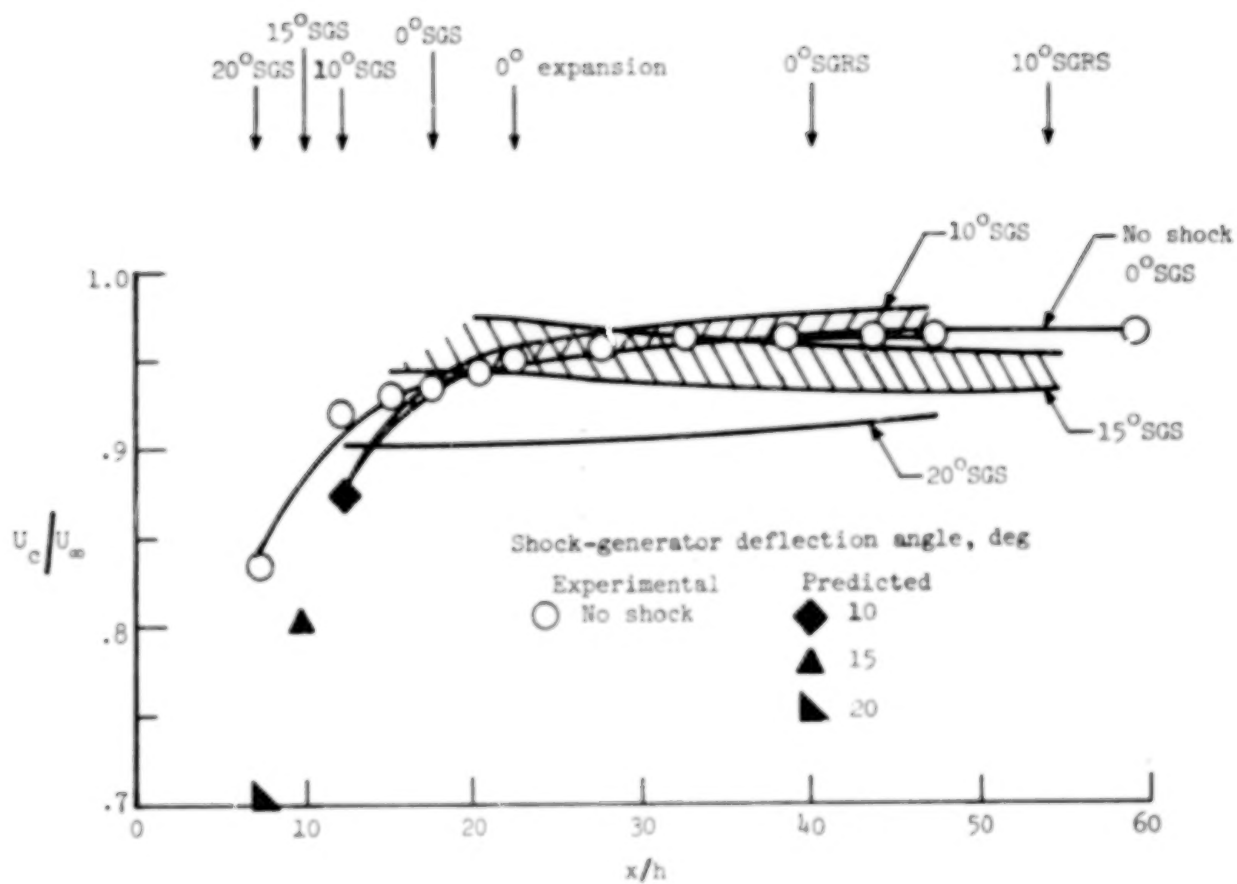
Figure 32.- Wake center-line velocity distribution minus
inviscid effects of expansion.
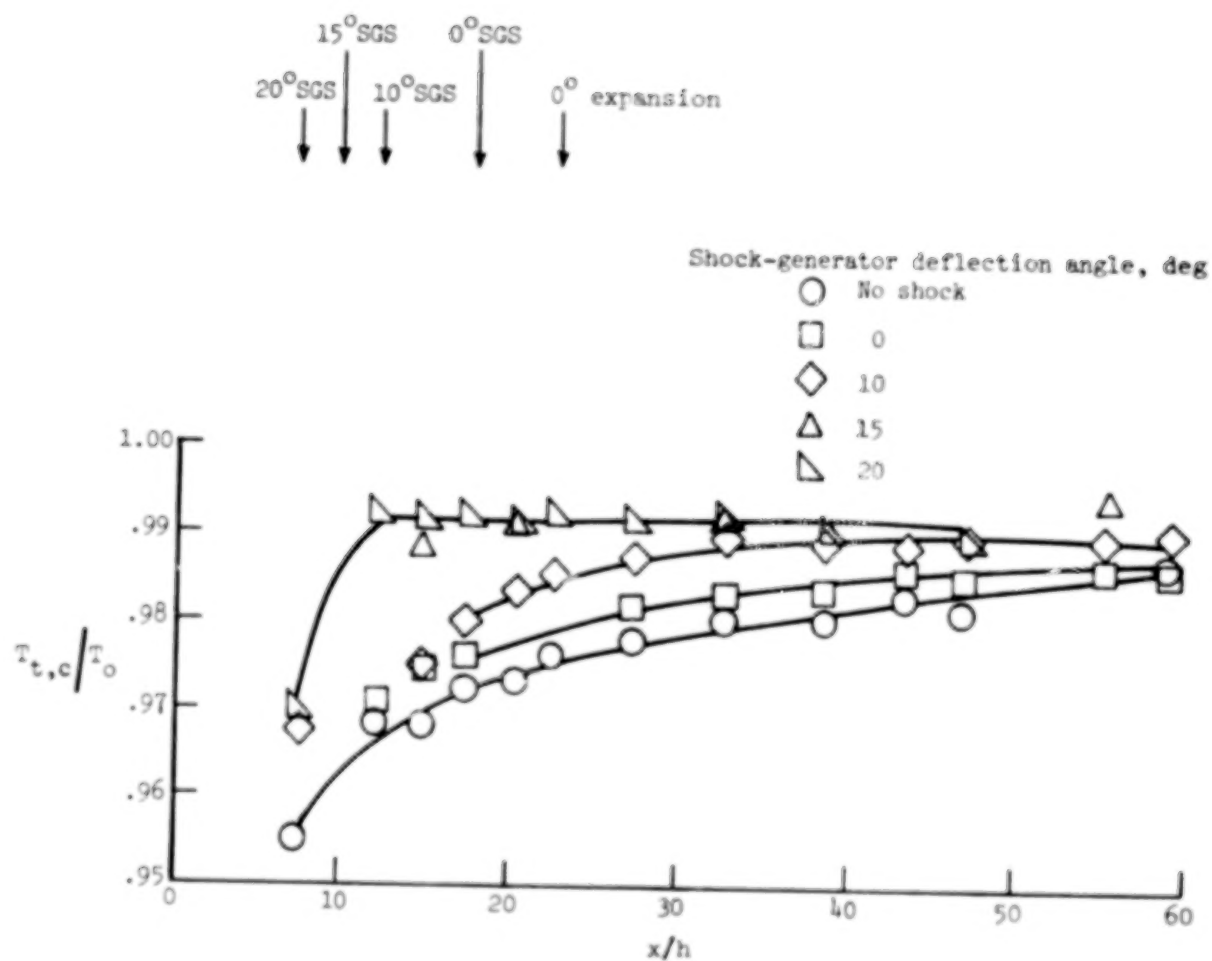
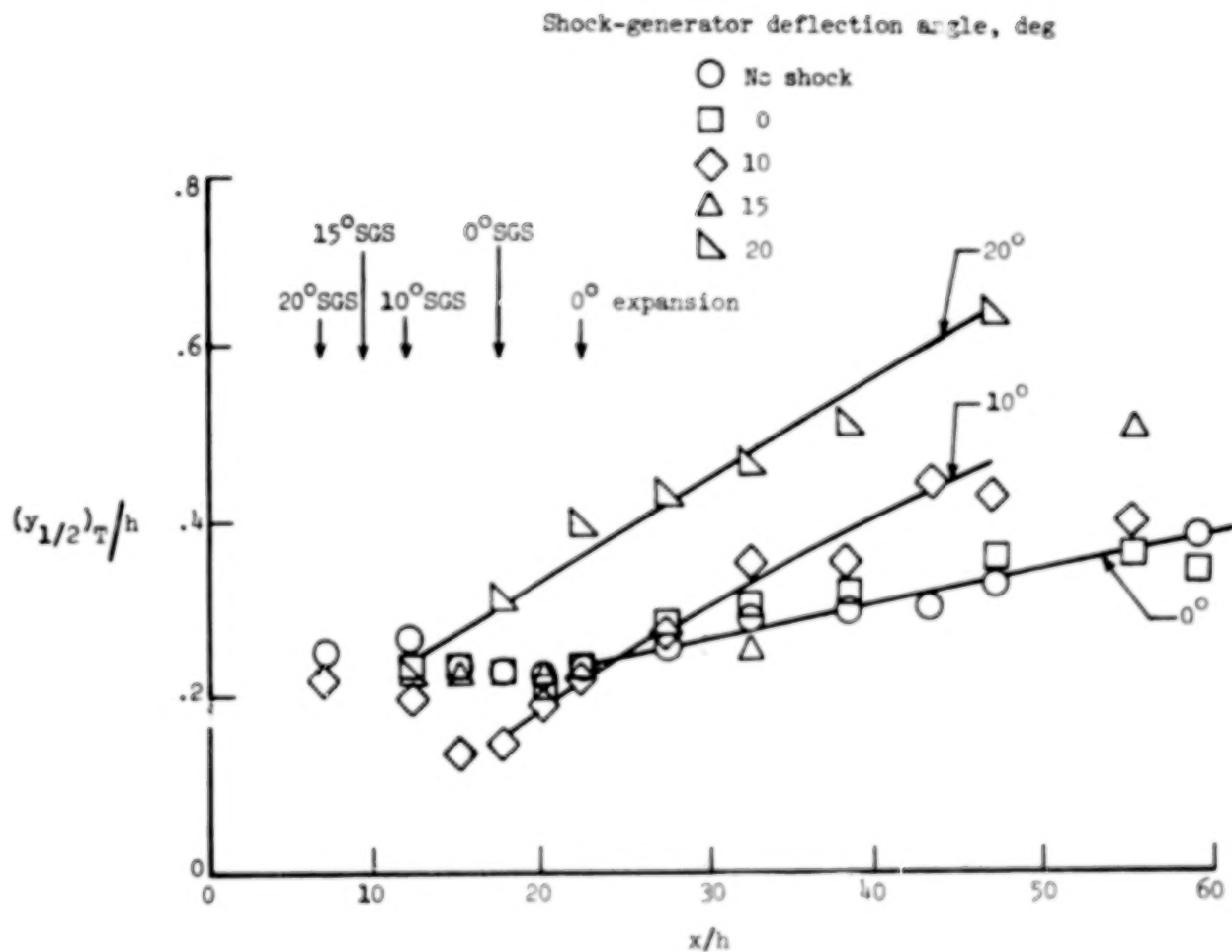Figure 33.- Wake center-line total-temperature distributions.

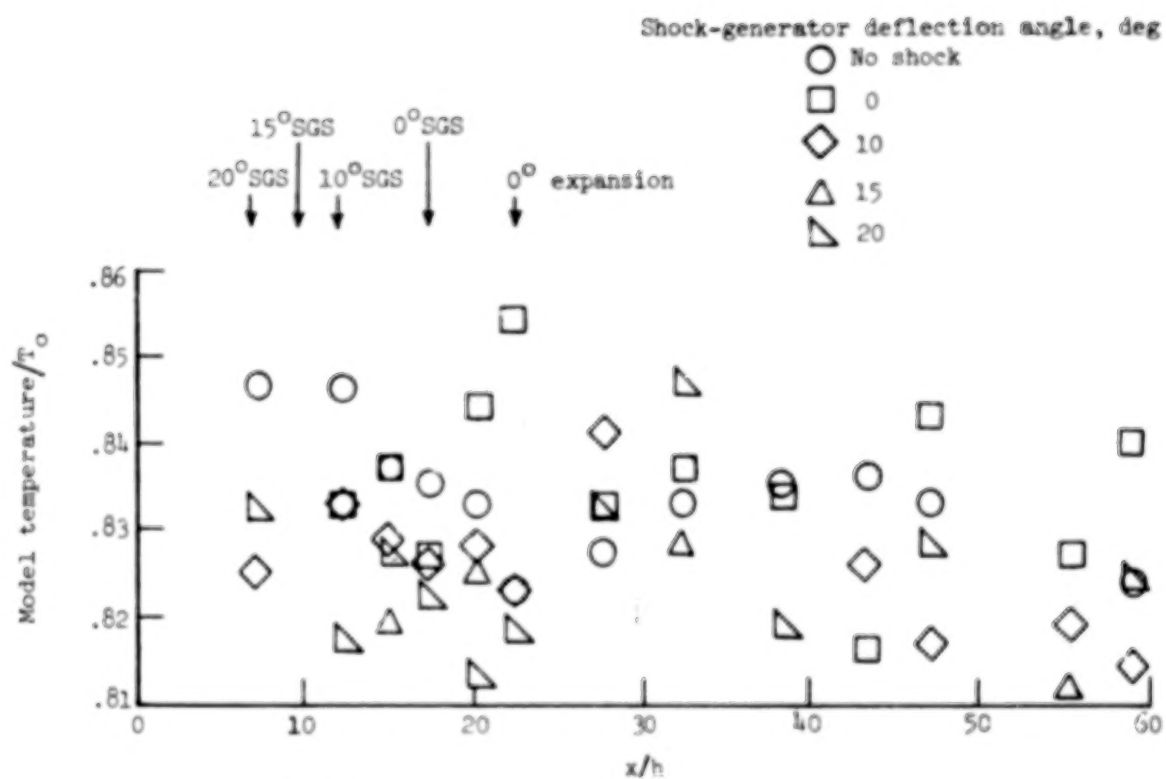Figure 34.- Wake growth determined from total-temperature profiles.

Figure 35.- Model temperature with traverse probe at center of wake.

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15. Supplementary Notes

16. Abstract

Measurements of mean pitot pressure, static pressure, and total temperature have been made in the two-dimensional turbulent mixing region of a wake downstream of an interaction with a shock-expansion wave system. The results indicated that (1) the shock increased the mixing and (2) the expansion field that followed the shock decreased the turbulent mixing. The overall effect of the shock-expansion wave interaction was dependent on the orientation of the expansion wave with respect to the intersecting shock wave. These data could be used to validate nonequilibrium turbulence modeling and numerical solution of the time-averaged Navier-Stokes equations.

17. Key Words (Suggested by Author(s)) Compressible turbulent free mixing Pressure gradient Shock interactions	18. Distribution Statement Unclassified – Unlimited Subject Category 34

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